Re-Constructing the Past in Post-Genocide Rwanda: An Archaeological Contribution

Doctorate of Philosophy (PhD)

John Daniel Giblin

Institute of Archaeology,
University College London

January 2010

Declaration

I, John Daniel Giblin confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signed: Dated:

Abstract

A particular version of Rwanda's pre-colonial Iron Age past was constructed during colonial rule and influenced by a racial world-view. This ethnicised and racialised past was used by successive Rwandan rulers to divide the population along newcomer/latecomer lines and eventually became a central tenet of the propaganda that contributed to the genocide in Rwanda in 1994. More recently this racial presentation of Rwanda's past has since been successfully deconstructed by social historians such as Mamdani (2002), Chrétien (2003), Eltringham (2004) Vansina (2004 and Newbury (2009), and has been shown to be a heavily biased construction based on colonial values. Yet, the ethno-racial presentation of the past continues to be problematic for history education in Rwanda.

This thesis follows on from the work of these authors. It suggests that archaeology can usefully engage with contemporary political contexts, involving the deconstruction and reconstruction of Rwanda's pre-colonial past in a climate of reconciliation. Following this introduction this thesis explores the concept of ethnicity in relation to Rwandan archaeology before reconsidering the tangible evidence for the Iron Age in Rwanda through a critical review of the existing literature. Furthermore, through the application of a politically aware and sensitive theoretical and methodological framework, this thesis explores non-ethno-racial historical narratives in pre-colonial Rwanda through a new body of archaeological data generated during twelve months of recent fieldwork in southern, central and northern Rwanda. Finally this thesis concludes with a summary of the archaeological outcomes of this research and some speculation on future research directions.

Table of Contents

Chapter Four: Reviewing the Evidence

Chapter Five: Methodology

Chapter Six: Research Findings from Southern Rwanda: Case Study 1

Chapter Seven: Research Findings from Central Rwanda: Case Study 2

Chapter Eight: Research Findings from Northern Rwanda: Case studies 3-6

Chapter Nine: Contextualising the Results

Chapter Ten: Concluding Comments and Future Directions

Bibliography, Appendices

List of Figures

Acknowledgements

The Arts and Humanities Research Council funded this PhD, with additional assistance from the Institute of Archaeology Awards, Oxford Radiocarbon Accelerator Dating Service, University College London Graduate School, the Central research Fund of the University of London, with assistance provided by the Institute National Musee de Rwanda (INMR) and the British Institute in Eastern Africa.

The greatest thanks must go to Professor Celestine Kanimba Misago, the director of INMR and lecturer at the National Museum of Rwanda (NUR). Professor Kanimba granted permission for this research to take place, supplied staff, students and work space alongside numerous research permission papers and letters of introduction, all with official stamps.

The amazing Rwandan staff and students from INMR and NUR who I had the delight of working with include: Dantes Singiza, Isadore, Jerome, Daniel, Ntagwabira André, Maurice Mugabowagahunde, Théophile Sebazungu and Freddy Munana all of whom made a massive contribution in ever department.

Outside of Rwanda, this thesis was made possible by the ongoing support, encouragement and inspiration of Dr. Andrew Reid who still refuses to spare the rod for fear of spoiling the child, and Dr. Ceri Ashley who supplied logistical support and training in London, alongside various sofa beds.

Many people have formally contributed to this research and great thanks go to Dr Anna Clement, Dr. Dorian Fuller and Jane Humphris who contributed specialist help and findings to this research. Further thanks go to Jane, more recently Mrs. Hatton, my sister in crime, who gave immense support in the field, butchered Christmas dinner with me, made our little house in Butare a home and never failed me at Safari.

I have also had the pleasure of working with many fantastic international students and assistants during this fieldwork all of whom made an important contribution to the work through their labour and sense of humour, in order of appearance: Laurie Thraves, Jessica Espey, Sophie Perry, Marjaana Khotamaki, Maiya (no shoes), Sarah Luddy, Yvonne Cichoka, Toby (parachute) Hodgson, Carl King, Rosamund Hanley, Wendy S-Woodiwis, Nshima Doshi, Sarah Wolff, Esther Elin Roberts, Jon Bhalla and **Charlotte Cross**.

I was also fortunate to have been supported in the UK and Rwanda by my ever-tolerant parents, Danny and Sylvia, and by super friends: Katie Cochrane (sofa and shoulder), Corrie Young (fantastic hospitality), Louise Iles (festive treats), Kat Manning (illustration skills and spare bed), Stephan GIS and Nick Black (map skills), Vanessa (many sofas), Gemma, Lucy and Emma (my raggy dolls); and by other soft, and not so soft, furnishings across London, the Isle of Wight and Rwanda.

Final but no-less important, thanks go to all best Butare folk who made Rwanda time such a pleasure: Coco, Albert, Thierry, Thierry, Thierry, Manu, Maggie, Max, Ruthi, Trina, Kim, Claudio, Karen, Rev. Odillo, Hugh and Anson (Banyak Films), and Tarek, Omar and Hassan (Matar) who fed me wherever I was.

Murakoze Cyane Cyane Cyane!

Chapter One

Archaeology, Politics and the Contested Past: background and objectives

Archaeology is not a discipline that is simply concerned with the past per se, but is also involved with the way in which the present constructs itself through its use of the past (Jones 1997: x). This issue has particular salience in a Rwandan context because as a colonial state, independent nation and post-genocide country, each ruling group has explicitly returned to the pre-colonial past to legitimate the contemporary power structure in the country (for a discussion see Mamdani 2002; Pottier 2002; Eltringham 2004; Freedman et al. 2009). However, the examples drawn upon have rarely been based on tangible data. Instead they have been founded on uncritical manipulations of the oral traditions (e.g. Kagame 1947, 1961, 1972; Hiernaux 1956; Maquet 1961).

Today, this situation continues as the government of Rwanda seek to promote their version of events as an official single historical narrative (e.g. Freedman et al 2006). However, unlike their predecessors who drew upon colonial historical constructions to legitimate social division along ethno-racial lines (Des Forges 1999: 31), the current government are seeking to foster reconciliation by highlighting social cohesion and uniformity in pre-colonial times, as a consequence becoming actively involved with the devaluation of pre-colonial social identities such as Tutsi, Hutu and Twa in favour of more socially inclusive historical groups such as clans (Buckley-Zistel 2009: 46; Freedman et al. 2009: 676) (discussed in Chapter 2). Yet, despite these laudable efforts at reconciliation, it would be naïve to suggest that the present government are not also legitimating their own rule by devaluing ethnic imbalances in the current government (Buckley-Zistel 2009: 47).

Nevertheless, the vast majority of the government's narrative has received academic backing from social historians working outside of Rwanda (Freedman et al. 2009: 676) who have deconstructed colonial ethno-racial presentations of society through a critical comparison of court and non-court oral traditions (e.g. Chretién 2002; Vansina 2004; Newbury 2009). However, the social historical approach has questioned the promotion of one history above all others and instead has highlighted a range of complex and dynamic historical processes that took place in pre-colonial Rwanda (e.g. Newbury 2009: xxxi) (discussed in Chapter 3 section 3.1). Thus, promoting a multi-narrative approach to the past and a celebration of the heterogeneity of Rwandan pre-colonial society, in comparison to the narrow homogeneity suggested by the government. Although the government's position is understandable as it seeks to prevent identity-based conflicts that blighted Rwanda in the 20th century from reappearing in the 21st century, educationalists have expressed dissatisfaction with this approach because by marginalising non-official histories they may create resentment, leading to social fracturing instead of the intended integration (Buckley-Zistel 2009: 31; Freedman et al. 2009: 677) (discussed in Chapter 2 section 2.5).

Unfortunately, archaeology is yet to play an explicit role within this contested ground. Sixteen years since the end of the genocide there has been virtually no new archaeological fieldwork in Rwanda (exceptions include Humphris' 2008 recent archaeometallurgical research, Simonet's 2004 very brief excavations and the research presented here). Moreover, when archaeologists have discussed Rwanda (e.g. Van Grunderbeek et al. 2001; Van Grunderbeek and Roche 2007; Craddock et al. 2009) they have confined themselves to academic debate and avoided direct engagement with the colonial construction of history and the contemporary official narrative. However, it is the contention of this thesis that archaeology as a discipline has massive potential for the exploration of the contested past and therefore has an important role to play within a reconciliation context in post-genocide Rwanda. Thus, the first challenge for this thesis will be the justification of the employment of archaeology in a social context that is still affected by the aftermath of identity-based conflict and the horrors of genocide. This will be achieved through a discussion of archaeology's chequered relationship with politics (Chapter 1) and through an exploration of the contemporary context of research in Rwanda and the potential application of archaeological information (Chapter 2).

Indeed a large body of archaeological data already exists for Rwanda because prior to the cessation of research in the late 20th century, Rwanda received relatively intense archaeological attention (e.g. Hiernaux and Maquet 1957, 1960; Nenquin 1967a, 1967b; Hiernaux 1968; Van Noten 1972, 1979, 1983). However, the archaeological interpretations produced during this period are problematic today because they are essentially colonial in nature (for a notable example see the work of Van Grunderbeek et al 1983). For example, they have unwittingly reproduced the colonial ethno-racial explanations of Rwandan society that eventually contributed to genocidal ideologies and remain an obstacle to reconciliation today (Hintjens 2008: 241). Thus, the next challenge for this thesis will be the development of an archaeology that does not reproduce genocidal ideologies but generates interpretations that are not only archaeologically sound but also useful within post-genocide Rwanda (Chapters 3 and 4). This will ultimately be achieved through the development and implementation of an informed, politically sensitive methodology (Chapter 5), which will allow for a critical reconsideration of the extant archaeological resources (Chapters 6 to 8) alongside the identification and contextualisation of new ones (Chapter 9).

This chapter will now present a case for a politically aware archaeology in Rwanda by first discussing the changing role of archaeology over the 20th century, with brief examples from western archaeological theory that demonstrate the continual interplay between archaeology and politics. Second it will discuss archaeology's role in contested pasts with a famous example from the Indian city of Ayodhya. Third, it will discuss the relationship between archaeology and politics in Africa and will focus on two prominent examples from sub-Saharan Africa: Great Zimbabwe and South Africa. These brief case studies, whilst not directly politically related to Rwanda, are believed to be of relevance as examples of archaeological engagement with identity-based conflicts.

This chapter will demonstrate that a relationship between archaeology and politics, whilst problematic, is unavoidable. Thus, archaeologists should engage with the political context of their research both in order to conduct it sensitively in regard to the needs of the countries in which they work, but also to help constrain or direct the political use of their data and interpretations.

Following this discussion the chapter will relate these issues to Rwanda before briefly describing the background to the project, the collaborators and the structure of the thesis.

1.1 The Role of Archaeology

"The past does not exist"

(Reid and Lane 2004: 1)

As Lane and Reid suggest, the past does not exist. Instead reconstructions of the past exist in the present based on varying interpretations of texts, languages, artefacts and landscapes amongst other sources. Archaeology is a tool, like history, that has been developed to aid the interpretation of these sources and to help reconstruct the past in the present. Thus, both history and archaeology face the same epistemological challenges: "how do we link the present in which artefacts/documents are perceived and experienced, and the past in which they were made and used" (McIntosh 2005: 52).

The challenge of interpretation is central to archaeology, and the way in which archaeologists interpret the past include a variety of dynamic perspectives. Histories of archaeology commonly record three major 20th century interpretative trends in western archaeological theory: culture-history, processualism and post-processualism (e.g. Trigger 1989). These interpretative trends also follow changes in the role of archaeology and have all been influenced by shifts in external political perspectives in society alongside internal archaeological debate.

For example, culture-history developed within archaeology partly because of the growing awareness of geographical variability in the archaeological record. Thus, culture-historians attempted to describe and classify archaeological materials, and map material cultural traits, in order to identify discreet cultural groups in the past and thus retrace the various histories of living and extinct peoples (e.g. Childe 1929; 1935). For culture history then the role of archaeology was to describe difference in the past based on nationalisms. However, external political influences, such as a growing sense of nationalism and racism in western and central Europe, which promoted ethnic groups as the defining unit in human history, were also central to the success of culture-history (Trigger 1989: 211).

Culture-history came under attack in the 1950s and 1960s with the rise of a processual approach advocated by New Archaeology that believed the role of archaeology was not simply to describe the past, but to ask questions of it, and to try to understand how and why communities were manifested as they were (e.g. Binford 1962, 1965; Clark 1968). Processualism removed itself from the historical particularism of culture history to answer larger questions about the mechanics of society often producing grand meta-theories. This "loss of innocence" (Clarke 1973) brought archaeology more firmly within the realms of anthropology and the social sciences and represented a dramatic shift in the role of the discipline. Archaeology's purpose was no longer to separate and describe human history by ethnicity based on material culture traits, instead it emphasised cross-cultural regularities and general unifying processes (Trigger 1989: 393). However, like culture-history, processualism was also influenced by external political changes. For example, Hall (1996: 127) suggests the shift towards the appreciation of cultural similarities instead of differences can be traced to the growing rejection of racism after the racial atrocities of the 2nd World War.

Processualism's belief in the inherent predictability and similarity of societies and their adaptive trajectories received criticism in the 1980s because it reduced the potential for human innovation and thus denied agency (Johnson 1999: 204). In a post-colonial, multi-cultural environment in which all cultures were viewed to be unique and valuable in their own right, cultural evolutionary models, associated with processualism, were viewed as being ethnocentric and morally untenable (Trigger 1989: 449). Again, external political influence altered the way in which archaeology was conducted. Thus, the 1980s saw the emergence of the post-processual school of thought, which suggested the role of archaeology was to investigate the multiple pasts and identities that made up societies, often by reverting to historical specificity and detail (e.g. Hodder 1985). One facet of post-processualism was the idea that whilst archaeology strived for objectivity it was inherently subjective, not simply because of the bias of the archaeological record, but also because of the biases of archaeologists themselves (e.g. Hodder 1984; Shanks and Tilley 1987: 10). Thus, not only was archaeology's purpose to investigate the variety of the human past, it was also to question its role and influences in the contemporary world in which archaeology is conducted.

Whilst this historical summary is clearly a gross oversimplification, it does demonstrate that the role of archaeology has continued to change over the past 100 years, both as a result of internal archaeological debate and external political forces. However, the role of archaeology has not changed uniformly over time. Indeed the practice of archaeology also depends on the tradition of the practitioner. Trigger (1984) has expressed this through an archaeological typology that divides archaeological research into one of three "alternative archaeologies": nationalism, colonialism and imperialism. Trigger (1984: 356) suggests that each of these archaeologies produces a construction that reflects the political context in which it is practised. In Trigger's model nationalist archaeologies tend to be practised by indigenous archaeologists, to glorify a national past and to have been sponsored by the state in which it is conducted; colonialist archaeologies tend to be practised by non-indigenous archaeologists who represent indigenous societies as static groups that only change through contact with external stimuli, thus legitimising 'colonial' projects; finally, imperialist archaeologies are created by archaeologists working out of a few of the most influential states, e.g. world powers, who demonstrate and reinforce their imperial influence through broad sweeping archaeologies.

Whilst Trigger's (1984) typology has been both supported (e.g. Hall 1990) and challenged (e.g. Robertshaw 1990) the political nature of archaeology has not been disputed. Despite the extreme positivism of processualism, archaeology cannot be considered a scientifically objective discipline to the same degree as physics, chemistry or biology. Bias is influential at all stages of interpretation, and the time, place and thus political climate, in which research is conducted, is extremely important (Shepherd 2002: 193). These biases vary from practitioner to practitioner creating multiple interpretations of the same pasts, both complementary and conflicting.

1.2 The Contested Past

> "The archaeologically and historically recovered past can be considered contested territory" (Arnold 1999: 1)

As Arnold suggests, the reconstructed past is constantly disputed by competing presentations, often based on differing interpretations of the same evidence. These disputes may be led by a variety of different interest groups, with varying agendas, who may exist within the same academic discipline, with competing disciplines, or in the public, non-academic sphere. Thus, the past is a contested space and archaeology cannot avoid dealing with the politics inherent in these debates.

The relationship between politics and archaeology has often been cited negatively. The use of ethnocentric archaeological data and interpretations (e.g. Kossina 1911) by Nazi Germany to promote its own racial worldview is just one example (Arnold 1990: 121). However, the relationship between politics and archaeology is not straightforward and cannot simply be avoided because it is perceived to be dangerous and undesirable. An example that demonstrates some of the complexities surrounding this debate is the case of Ayodhya, India (Bernbeck and Pollock 1996: 138-142).

In 1992, based on a historical account, Hindu militants destroyed a 16th century mosque at Ayodhya because they believed there were traces of an important Hindu temple beneath it (Bernbeck and Pollock 1996: 138). The conflict surrounding the site had been ongoing since independence and this was the latest most violent escalation. Before 1992 both parties evoked archaeological evidence because in the absence of suitable historical documentation there were no other appropriate sources available. Three sets of archaeological excavations were undertaken, producing a variety of conflicting interpretations, none of which were considered conclusive by both sides (Bernbeck and Pollock 1996: 139). Unfortunately, although for a significant period conflict was contained within academia, in 1992 hundreds lost their lives as violent riots erupted.

By 1994 archaeological involvement had become so problematic at Ayodhya that despite the World Archaeological Congress (WAC) taking place in Delhi during the second anniversary of the destruction of the mosque, WAC banned any discussion of Ayodhya in all forums at the congress (Bernbeck and Pollock 1996: 139). Although clearly pressured into a decision by the threat of closure by the state government, Jack Golson the president of WAC released a statement agreeing with the Indian authorities that there should be no discussion of the Ayodhya issue "because the practical consequences of discussing this issue would be beyond the Executive's control", much to the disproval of many of the delegates (quoted in Colley 1995: 15). Bernbeck and Pollock (1996: 138) have suggested that by avoiding this politically heated topic WAC failed to aid the establishment of criteria by which to evaluate competing knowledge claims at Ayodhya. More generally, they suggest that the attempt to remove archaeology from the political arena is unacceptable because, "in such an approach, there is no basis on which to challenge those versions of the past that contain racist, sexist, or other discriminatory interpretations" (Bernbeck and Pollock 1996: 139). By withdrawing from the debate, WAC allowed one archaeological interpretation to be as good as another, instead of exposing the racism inherent in the militant argument that was using Ayodhya as a catalyst for anti-Muslim violence (Bernbeck and Pollock 1996: 140).

Regardless of the preferences of archaeologists, archaeology was evoked in the Ayodhya debate because it was clearly an extremely important source for both sides. However, through fear of engagement WAC organisers took a Pontius Pilate approach, washed their hands of the affair and freed others to interpret and present archaeology unhindered by professional criticism. Archaeology often exists in antagonistic fields and thus archaeologists must learn to engage with political debate or accept that interpretations of the past will instead be led by politicians (Starzmann et al. 2008: 354).

The relationship between politics and archaeology in Africa is complex. Examples include the use of archaeology as a colonial science harnessed to subjugate African peoples and territories; the use of archaeology to justify colonial administration and population growth (e.g. see Holl 1990; de Maret 1990); the use of archaeology by African nationalists to fight against colonialism (e.g. Diop 1996); and finally, today the explicit interaction of archaeology and politics in the illicit trade of antiquities, identity issues, and the negotiation of material culture ownership (e.g Shaw 1997; Fontein 2006; see Shepherd 2002).

The two case studies below demonstrate that whilst the involvement of archaeology in politics is always problematic, and sometimes negative, it can also have positive outcomes. Great Zimbabwe has been selected because it is a prominent African example of how archaeological interpretations, for better or worse, are unavoidably situated within their contemporary political context. However, it will not be returned to during this thesis. In contrast, the relationship between archaeology and apartheid has been selected because it is an example where archaeology has successfully been employed in a post-identity-based conflict situation to foster reconciliation. Thus, this example will help to direct this thesis as it explores the role of archaeology in post-conflict Rwanda (Chapter 2 section 2.5).

1.3 Great Zimbabwe

The history of interpretation at the site of Great Zimbabwe begins with wild debates concerning its external origins and possible relationship to Queen of Sheba and King Solomon myths, and historical peoples such as the Phoenicians (e.g. Bent 1896). Today, politics and debate continue to surround Great Zimbabwe. However, these are no-longer focused on external origins instead they are concerned with cultural ownership by various indigenous groups and heritage stakeholders (Fontein 2006).

Early interpretations of Great Zimbabwe suggested that such an impressive structure could not have been built by a 'native' population but must have been constructed by a non-African people (e.g. Hall 1909; Johnstone 1909; for a notable exception see David Randall-MacIver 1906). It was not until twenty years later that this perspective was seriously challenged in southern Africa by the scientific archaeological methods of Gertrude Caton-Thompson (1931). Caton-Thompson (1931), like MacIver (1906) before her, presented extensive evidence that disproved the claim that Great Zimbabwe had external origins. Caton-Thompson's results appear to be an example of how 'objective' archaeological reasoning can slice through political bias to uncover the archaeological 'truth'. However, neither Gertrude Caton-Thompson (1931), nor her predecessor MacIver (1906), escaped the political context of their research or the colonial views of their audience. Caton-Thompson was renowned for her meticulous approach and was unlikely to misrepresent the clear stratigraphic evidence at Great Zimbabwe that indicated it was an indigenous achievement (Fontein 2006: 13). However, she was also a product of her times and influenced by her surroundings. Thus, in mitigation she, like MacIver, reduced the impact of her findings by suggesting that the achievement was childlike:

> "The architecture at Zimbabwe, imitative apparently of a daub prototype, strikes me as essentially the product of an infantile mind, a pre-logical mind, a mind which having discovered the way of making or doing a thing goes on childishly repeating the performance regardless of incongruity." (Caton-Thompson 1931: 103; also famously cited in papers by Hall 1984 and Fontein 2006)

Although Caton-Thompon's findings had the potential to ignite a new agenda, which investigated and promoted African accomplishments, the persistence of colonialism and the lack of an African political voice prevented that. (Although from 1965 until 1980 white settlers in Rhodesia made a Unilateral Declaration of Independence (UDI) from the United Kingdom and thus technically from this point the territory was no longer a colony). It was not until later, in a period of growing African independence and African nationalism, that Great Zimbabwe was harnessed for the purpose of promoting African independence. However, within Rhodesia, Great Zimbabwe continued to be presented as an exotic structure by white settlers (e.g. Bruwer 1965) and officials right up until Zimbabwe achieved independence in 1980 (Shepherd 2002: 196; Fontein 2006: 8, 10). Recognising the powerful symbolic significance of Great Zimbabwe, the site was adopted as a symbol for African nationalism in the 1960s, subsequently being taken as the national symbol and name of the newly independent Zimbabwe in 1980, and actively promoted for nationalistic purposes within Zimbabwe in the preceding years (e.g. Mufuka 1983).

Unfortunately, whilst the adoption of Great Zimbabwe by Zimbabwean nationalists, the independent state and later UNESCO, as a World Heritage Site, is in many respects positive, it is also a form of colonialism. As Fontein (2006: 9) suggests, today Great Zimbabwe has been colonised by the heritage profession and by the state for their own goals. The cultural ownership of the site by smaller indigenous stakeholder groups, who claim a historical link with Great Zimbabwe, has largely been ignored or silenced in favour of the greater good of archaeology, tourism and national politics.

Great Zimbabwe is a very prominent and often cited example of the relationship between politics and archaeology in Africa (e.g. Trigger 1989: 197-201; Preucel 1995; Hall 1984; 1996; Shepherd 2002; Ranger 2004; Fontein 2006). The case demonstrates the complex and unavoidable relationship between archaeology and politics and suggests that whilst archaeology may inform politics, it is often external political pressures that change the role and impact of archaeology.

1.4 Apartheid and Post-Apartheid Archaeology

> "working with Iron Age materials – the last 2,000 years or so of a history then largely unwritten, and the patrimony of the majority of black South Africans – did make me realize that this sort of archaeology is always – and inevitably – political in nature……I found it difficult to understand – and still do so – how colleagues can argue that archaeological interpretation is 'above politics'" (Martin Hall interviewed by Lucas 2006: 57-58).

As Hall suggests, the history of archaeology in South Africa is a political history (also see Hall 1984: 455). For example, in the 1930s and 1940s archaeology was established in South Africa under the political patronage of Jan Smuts, head of the United Party, and sometime Prime Minister. However, it lost official patronage in 1948 when the Afrikaner nationalists came to power on an apartheid ticket (Shepherd 2002: 197). Despite never returning to political favour, there was an archaeological resurgence in the 1960s and 70s based on increased university funding by the apartheid state and because, "an archaeological service was seen as part of the essential cultural apparatus of a modernizing state" (Shepherd 2002: 198). From that moment on archaeologists and the apartheid government were in the strange position of enjoying mutual loathing, but benefiting from the existence of each other. In response, some archaeologists challenged their "economic masters", whilst others chose to avoid conflict.

For example, many archaeologists working in South Africa under apartheid avoided contested ground by either investigating less controversial periods or by retreating into a technical world that was virtually inaccessible except to other archaeologists (Hall 1990: 63). However, some attempted to undermine the authority of the state sponsored version of history by looking for the origins of black communities. Nevertheless, Martin Hall (interviewed by Lucas 2006: 56) suggests that the apartheid state was too busy killing and jailing its opponents to worry about intellectual arguments. Furthermore, he suggests that the practice of any archaeology in the country actually gave the government a feeling of scientific normality and implied legitimacy. However, it is difficult to suggest that archaeologists should not have conducted academically sound research and challenged the apartheid government, or that they should have ceased to operate. For example, Hall (1990: 73) criticises the archaeologists who deliberately took archaeology under apartheid into obscurity to avoid political conflict, and points to the reaction against it by the Black Consciousness movement who in response resorted to "an abstract, utopian vision of the pre-colonial past". Thus, by avoiding engagement, archaeologists allowed political groups to fill the interpretative vacuum.

The most prominent clash between archaeology and apartheid outside of South Africa came when a series of events led up to the 1986 "disinviting" of South African and Namibian archaeologists from the first World Archaeological Congress (WAC) held in Southampton (Shepherd 2002: 201). Consequently, the International Union of Prehistoric and Proto-Prehistoric Societies withdrew its financial support for the congress and over 400 academics boycotted the event. The protest against apartheid by the organisers of WAC, led by Peter Ucko (1990), split archaeology into two groups, those that believed that academic free speech should be maintained at all costs (e.g. Crabtree 1988) and those that believed the apartheid regime was so abhorrent that academics working under apartheid should be stopped from attending (e.g. Ucko 1990). Today the actions of the organisers are seen as a principled and exonerated stand but at the time it was a complex and divisive issue (Shepherd 2002). For example, the "disinvitation" prevented many archaeologists from attending who were actually challenging the apartheid regime from within South Africa.

In post-apartheid South Africa the role of archaeology has changed but it is still political. Today, although archaeology continues to be harnessed as a means to challenge the old racial official history, the emphasis has shifted to the investigation of South Africa's multi-narrative past and the use of archaeology as a tool for reconciliation, for example in the field of education.

Amanda Esterhuysen (2000: 159-65) has investigated the birth of educational archaeology in post-apartheid South Africa. Previously the politics of the past had been excluded from the classroom because "the substance of archaeology; the evolution of humans, African and pre-colonial southern African history did not conform to the Christian Nationalist viewpoint, or conform to the government's values" (Esterhuysen 2000: 161). However, in 1994, under the new ANC government, education was radically restructured to rid it of the racial dogma that previously defined it, and in 1995 South African archaeologists lobbied to have archaeology included in the new curriculum. They showed that "the application of archaeology in the classroom was a powerful means of restoring the excluded past and providing pupils with the tools to challenge and deal with negative images of the past and associated racial, ethnic, and gender stereotypes created by the apartheid system" (Esterhuysen 2000: 161). It helped to show how all peoples had contributed to the South African past and helped pupils to challenge the written record, opening up a range of sources (Esterhuysen 2000: 162). Furthermore, archaeology was also shown to be a valuable educational tool in its own right because it aided 'outcome' based education, through site visits, and it helped to teach a variety of skills such as interpretation and the production of historical knowledge, the understanding of bias and the ability to question (Esterhuysen 2000: 162). As Esterhuysen (2000: 162) concludes, educational archaeology, "revitalises history, renews young people's interest in their heritage and allows them to appreciate the importance of archaeology as a tool to unravelling the past."

This section has introduced the unavoidable relationship between archaeology and politics and suggested the past is a contested territory that archaeology must actively negotiate. The following section will now relate the issues explored here to Rwanda.

1.5 Archaeology, Rwanda and Identity-based-conflicts

"The past legitimates the present."

(Arnold 1999: 1)

Implicit in all of the examples given during this chapter is the suggestion that the past has been exploited to legitimise the present. For example, when Great Zimbabwe was interpreted as an exotic structure it was being used to legitimate an exotic colonial regime. However, since it was promoted as an indigenous structure it has been used to foster nationalist emotions. Today, in post-apartheid South Africa the past is being used to legitimate reconciliation through educational archaeology and by challenging racist narratives. In Rwanda the pre-colonial past has been manipulated to legitimate successive regimes, including the royal court, the colonial administration, the post-colonial government and today the post-genocide government (discussed in more detail in Chapter 2). However, as in South Africa, it is believed that a structured, politically aware approach to the Rwandan pre-colonial past can be beneficial and can foster reconciliation in post-conflict Rwanda.

> "I believe that archaeologists can play a significant role in public discourse – in empowering public dialogues through providing a rich source of knowledge about the past."
> (Martin Hall interviewed by Lucas 2006: 58)

The view expressed above by Martin Hall is consistent with the perspective of this research. Although Martin Hall's work concerns southern Africa and specifically South Africa the author believes that the sentiment is no less appropriate to Rwanda, a country that has a very different history but has also suffered because of identity based conflicts in the 20th century. However, in order for archaeology to successfully achieve this in Rwanda it must engage fully with the political context by developing theoretical frameworks and methodologies that are both archaeologically legitimate and politically aware.

The civil war and genocide in Rwanda was stopped in 1994 and although there were rebel incursions in the country in the late 1990s, internally the country has been largely peaceful for nearly 15 years. Whilst wars have continued in neighbouring DRC and Burundi, creating instability around some of Rwanda's borders, the majority of Rwanda is safe and accessible for research. However, the legacy of conflict is still very visible in the Rwandan landscape both physically and mentally. Furthermore, this is continually reinforced by rebel groups operating close by outside of the country, the ongoing trials of *genocidaires* and public disputes over the government's version of events. Thus, in this sensitive climate it is extremely important to consider and engage with the political context of archaeological research in conflict/post-conflict Rwanda.

In the following chapter (2), this thesis will establish the nature of the contested past in Rwanda and the potential of incorporating educational archaeology within the secondary school education system. It is not the purpose of this research to deconstruct court, colonial, post-colonial, or post-genocide presentations of Rwanda's pre-colonial past. This has already been successfully and extensively achieved by others (e.g. Chrétien 2000; Mamdani 2002; Pottier 2002; Eltringham 2004; Vansina 2004; Newbury 2009), whose work will be discussed in Chapter 3. Neither is its purpose to uncritically follow and support the official single narrative of the current government. Instead this research will ask if it is possible to explore pre-colonial, Iron Age pasts in Rwanda, in a manner that is sufficiently archaeologically viable, accountable and objective whilst also remaining sensitive to the contemporary context of research.

The failure to conduct archaeological research in post-genocide Rwanda until now cannot simply be attributed to a lack of interest, funding, infrastructure or security. Indeed none of these factors have stopped other researchers, such as historians, journalists and environmentalists working there. Instead, it is suggested that archaeologists have not felt emotionally or politically able to engage with post-Genocide Rwanda because of the nature of the identity-based conflict and the issues surrounding ethnicity. Yet in the meantime the pre-colonial past continues to be appropriated by competing political regimes. Furthermore, reconciliation is being hampered because there is no negotiation of the pre-colonial past, on which genocidal propaganda was built, in secondary school education. Thus, in response, this research will develop a non-ethno-racial approach to archaeology that is specific to the context of Rwanda but may be adapted and applied to other broadly similar post-identity based conflicts, such as in neighbouring Burundi

Thus, in Chapter 3 this research will demonstrate that ethnicity, as a concept that has been applied to social groups in 20th century Rwanda, may not be applicable to pre-colonial Rwanda. Issues of ethnicity are difficult to discuss in contemporary Rwanda. For example, the government has passed a law against "divisionism", which effectively prevents discussion of an individual's ethnicity (Buckley-Zistel 2009: 46). However, ethnicity is difficult to discuss as a pre-colonial Rwandan identity for very different reasons. For example social historians suggest that pre-colonial identities were complex, often ambiguous, overlapping, social groups that shared a single language, lived in mixed communities and were sub-divided along many different lines, such as lineage and clan, and not just Tutsi, Hutu and Twa (e.g. Vansina 2004: 198-200). Therefore, the contemporary definition of ethnicity must be adapted or the term rejected in relation to pre-colonial Rwanda.

Furthermore, whilst archaeologists such as de Maret (2005) have been able to go from "*Pottery Groups to Ethnic Groups*" in neighbouring DRC, this is not possible in all archaeological examples (Jones 1997: 107). De Maret's (2005) ethnic groups relate to separate kingdoms and polities, with separate, and historically demonstrable, material culture traits. However, in Rwanda, Hutu, Tutsi and Twa were mixed within a single kingdom and shared a similar material culture. Furthermore, these terms were constantly changing and do not necessarily have a one to one relationship with particular subsistence economies as they came to be understood in the late 19th and early 20th centuries (Vansina 2004: 198). Thus, the possibility of identifying these identities in the archaeological record is negligible.

1.6 Background to Research

This research was first inspired in 2003, whilst conducting MA research in Uganda, after conversations with Rwandan expatriates living in Uganda who expressed a desire for the pre-colonial archaeology of Rwanda to be reinvestigated. A brief reconnaissance trip to Rwanda was made in 2004 and a longer preliminary research trip was made in 2005 where research proposals were presented to the Institute National Museé de Rwanda (INMR). The PhD element of this research began in October 2005 and the first fieldwork season was initiated in October 2006.

1.7 Research Participants

The fieldwork for this research was undertaken with the permission of Professor Celestin Kanimba Misago, the director of the INMR. Elements of the fieldwork were carried out alongside Jane Humphris' (UCL) archaeometallurgical PhD research (see Humphris 2008) but all of the field survey and excavations were managed and directed by the author (Giblin 2008). Fieldwork staff taken from the National University of Rwanda, the INMR, the British Institute in Eastern Africa and volunteers from international universities including UCL, Oxford and Newcastle, assisted the research. The ceramic analysis was conducted by the author, with advice from Dr Ceri Ashley (UCL), the zooarchaeological analysis was conducted by the author with supervision from Dr Andrew Reid (UCL) and the palaeobotanical analysis was conducted by Dr Dorian Fuller (UCL) with assistance by the author. The archaeometallurgical analysis of the grave goods was conducted by Jane Humphris (UCL) and the human remains analysis was conducted by Dr Anna Clement (UCL).

1.8 Structure of Thesis

Following on from the themes introduced in this chapter, the early chapters will contextualise this research within relevant political issues and will focus on more detailed reviews of extant work. Chapter 2 will situate the reader within the context of past historical presentations in Rwanda and the negative impact they have had on identity-based conflicts in the 20th century, and how these continue to problematise the past and present in Rwanda today. Chapter 3 will examine how social historians have already deconstructed these pasts and how their work has highlighted new ways to approach pre-colonial Rwanda. It will then explore the archaeological theoretical and conceptual successes and failures of Rwandan archaeology, and will develop a new theoretical framework with which to approach Rwandan archaeology that is sensitive to the identity-based conflicts that have occurred in the country whilst also remaining archaeologically vigorous. Through a critical review of the extant archaeological data, regarding the Iron Age in Great Lakes Africa and specifically Rwanda, Chapter 4 will identify a series of pertinent research questions that follow the theoretical framework set out in the previous chapter.

The second set of chapters relate to the data generated by this research and the fieldwork and analytical methodology. Thus, Chapter 5 develops a research methodology for the investigation of the research themes, objectives and questions identified in the previous review chapters. Following on from the methodology chapter the next three chapters deal with the results of the fieldwork and subsequent analysis carried out in Rwanda and London between October 2006 and March 2009, split into geographic case studies. Chapter 6 presents the results from southern Rwanda, Chapter 7 presents the results from central Rwanda and Chapter 8 presents the results from northern Rwanda.

Chapter 9 will draw these results together by detailing the relevant evidence from these combined geographic research zones before contextualising these within the extant archaeological issues, and directly tackling the research themes, objectives and questions identified in earlier chapters. Finally Chapter 10 will briefly review the data and return to the goals set out at the start of this document in Chapter 1, discussing research outcomes that have already taken place, before making some suggestions for future research and initiatives relevant to this work.

Chapter 2

Rwanda's Pre-Colonial Past:

20th Century Ethno-Racial Presentations

This chapter will describe how 20th century racial presentations of Rwanda's pre-colonial past were constructed as a consequence of colonisation and colonial attitudes to African society, and their interpretation of elite African power structures and strategies of power. It also describes how this racial historical construction was reproduced throughout the 20th century by successive administrations and how it contributed to 20th century conflict in Rwanda culminating in the 1994 genocide. Furthermore, it will describe how this construction continues to be problematic in contemporary Rwanda, for example in the realm of historical education, thus establishing a premise for the reinvestigation of Rwanda's pre-colonial past.

2.1 Geography and Demography

Rwanda (1°57'S 30°4'E) is a landlocked nation in central Africa bordered by Uganda, Tanzania, Burundi and the Democratic Republic of Congo (DRC) (Fig. 2.1). Rwanda is the most densely populated country in sub-Saharan Africa with a population of over 10 million people (based on the CIA World Factbook) living in 23,338 sq km. The vast majority of this population are engaged in subsistence agriculture. The country ranges from savannah grassland in the east and south, to mountains and volcanoes in the west and north, rising from 950m above sea level at the Rusizi River basin to 4500m at the summit of Mount Karisimbi. However, most of the county is covered by large closely spaced hills and Rwanda is known as the *pays de mille collines*. During the 20th century in pre-Genocide Rwanda three social groups were recognised: Twa, Tutsi and the majority Hutu. During this time these identities were presented as racially defined groups that were believed to historically relate to opposing subsistence economies including hunter-gatherer, pastoral and agricultural lifestyles (e.g. Maquet 1961). Today, Rwanda's post-genocide government are involved in the eradication of any identity-based divisionism and do not promote the use of these terms but prefer to highlight the historical unity of all Rwandans (Shyaka 2006: 33-35; Buckley-Zistel 2009: 46).

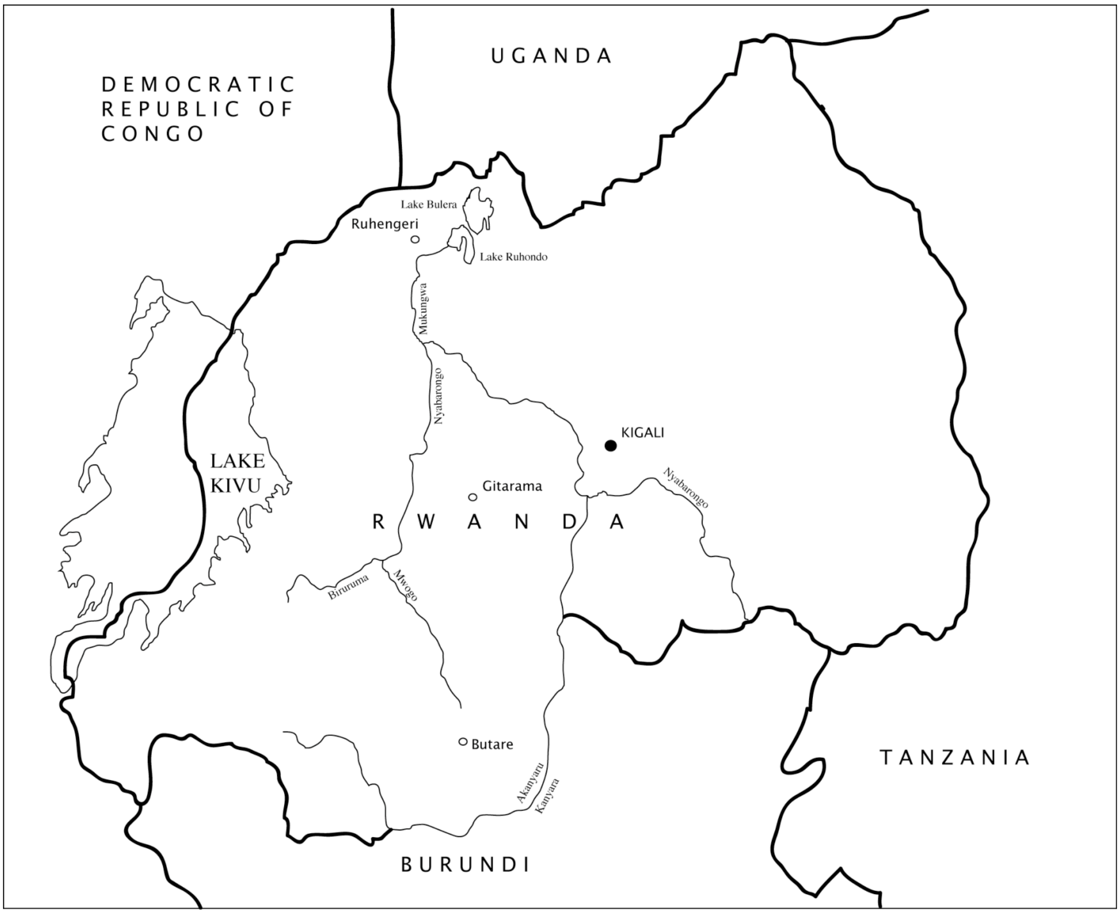

Fig. 2.1 Map of Rwanda showing neighbouring countries and major geographic features.

2.2 Late 19th Century History

The Kingdom of Rwanda was well established by the 17th century under the ruling Nyiginya Dynasty (Vansina 2004: 44). (Although at this time the polity did not cover the whole of modern Rwanda). The Nyiginya Dynasty was taken from the Tutsi social group but the majority Hutu retained access to power through a range of high-level positions within the armies and as clan chiefs (Vansina 2004: 75-76). However, in the years immediately preceding European contact at the end of the 19th century these institutions were gradually eroded to the benefit of Tutsi and to the detriment of Hutu. For example, the Tutsi monarchy had long recognised Hutu spiritual power, incorporating it in court rituals (*ubiiru*) conducted by Hutu ritualists (*abiiru*) whose knowledge the king (*mwami*) would consult to aid him in his decision making (Mamdani 2001: 64). However, although the *Abiiru* remained important during the 17th and 18th century they were systematically weakened prior to and during the reign of Rwabugiri in the late 19th century (Mamdani 2001: 64). By the end of Rwabugiri's rule, a once semi-autonomous Rwanda was divided into a well-organized structure of provinces, districts, hills and neighbourhoods, and administered by a hierarchy of chiefs, of which the higher levels were predominantly occupied by Tutsi.

Rwabugiri, who ruled Rwanda from 1860 to 1895, is remembered as the most despotic of Rwanda's rulers and oversaw Rwanda's most aggressive period of expansion. During Rwabugiri's reign, Hutu and Tutsi became increasingly unequal social groups to an unprecedented extent as a result of changing patron-client relationships (Eltringham 2004: 13; Newbury 1978). Initially agricultural land ownership was dominated by Hutus, which was expressed by the word *ubukonde*, emphasising a lineage's claim over the land it cleared. However, under Rwabugiri the concept of *igikingi* was introduced which emphasised land ownership as a political grant from the *mwami*. In return Hutu were required to complete *ubureetwa*, a form of forced labour (Mamdani 2001: 66). Despite social constructions that mitigated these developments, such as Hutu involvement in the administrative and military systems, Tutsi were increasingly associated with power and Hutu with political impotence (Mamdani 2001: 66-69).

It was during the reign of Rwabugiri that Europeans first entered Rwanda. In the late 19th century "the scramble for Africa" was in full flight and control of Great Lakes Africa, and the source of the Nile, were major concerns for European powers (Chrétien 2003: 202-204; Pakenham 1990). In 1890 Rwanda was allocated to Germany leading the way for the first European explorer, Count von Gotzen, to enter Rwanda in 1894, although Rwanda did not submit to German rule until 1897 (Chrétien 2003: 217-218). German power was short lived however, and in 1916, during World War I, Rwanda was occupied by Belgian forces and, despite a brief period of British administration, was formally turned over to Belgian rule in 1919 at the Treaty of Versailles, the Milner Convention, in Paris (Chrétien 2003: 260).

When the Germans, and later the Belgians, arrived in Rwanda they encountered a society that was at its historically most unequal in terms of group socio-political status. A slow process of vertical social-differentiation taking place over hundreds of years had been radically accelerated under the regime of Rwabugiri and compounded in 1891 when a rinderpest epidemic killed many cattle and further concentrated wealth in the hands of the most powerful people with the largest herds, who were the most resistant to herd size reduction (Chrétien 2003: 252). Thus, the stratification encountered by the first Europeans in Rwanda was the result of a historically situated, dynamic process of social cleavage, accelerated in recent years under Rwabugiri. However, as a result of the pervading colonial ideology, European explorers, and later colonists, believed the socio-political situation in Rwanda to be a static 'natural' formation built upon differences in racial origins and subsistence orientation.

2.3 Historical Constructions in 20th Century Rwanda

Since the early twentieth century, when Europeans first began recording Rwanda's history, Rwanda's past has been presented as a known entity, that is, a kingdom made up of three polarised socio-political, racial identities: Twa, Tutsi, and Hutu (Vansina 2004: 196-203). Such accounts constituted a distorted version of the modern state of Rwanda by presenting it as ancient, static and racially defined, and built on successive phases of migration, dominance and subsistence exclusivity (e.g. Maquet 1961). Key to this polarised view of history was the transference of Rwanda's modern territorial boundaries and socio-political relationships into representations of the ancient past. This discourse, in combination with the colonial imposition of 'ethnic' identity cards in 1933, defined and labelled previously socially ambiguous categories in static and value-laden terms (Hintjens 2008: 253). The removal of fluid identities created rigid subsistence and racially based ethnicities that restricted social interaction and understanding. Thus, an authoritative construction was created, which was used to explain social inequalities in Rwanda through history and to legitimise successive political structures as they reproduced these divisions. As Eltringham (2004: 147) has observed, this "appeal to history" was central to the colonial and subsequent post-colonial construction of racial distinction, establishing the "Hutu Republic" and genocidal propaganda. Unfortunately, this historical construction has continued to persist even in relatively recent literature (e.g. Overdulve 1997; Sebasoni 2000). Despite the problems associated with this version of history, it is important not to reject it entirely because as a construct it is rooted in the Rwandan past. However, it should be recognised as a discourse generated in an era dominated by racial frameworks, which eternalised a particular situation, failing to recognise it is as a phase in a dynamic and complicated historical trajectory. This section will now describe how this historical construction was influenced by the pervading colonial ideology and how it was reproduced throughout the 20th century.

Colonial ideology in Africa was built upon a concept of race and racial superiority that legitimised the domination of colonial subjects as it once legitimised the trans-Atlantic slave trade (Mamdani 2001: 78). Racial thinking helped legitimate slavery, because it argued that Africans were less advanced, less evolved, and were thus less human. However, as more African achievements were discovered through exploration, this theory was brought into question and it became increasingly difficult to support. In order to explain African accomplishments authors such as Johnston (1902) and Seligman (1930) turned to the "Hamitic Hypothesis", which suggested a race of Hamites, a pastoral sub-group of the Caucasian race superior to the Negroid Africans, were responsible for all the significant achievements in sub-Saharan Africa.

The "Hamitic Hypothesis" is a manipulation of the myth of Ham, the banished son of Noah. This myth has been reproduced many times over hundreds of years to justify the subjugation of different peoples. For example, the Israelites suggested that the Canaanites were descendents of the disgraced Ham, which justified domination by the Israelites. Later during the Atlantic slave trade this myth was harnessed in a similar way to dehumanise all sub-Saharan Africans, denigrating them as descendants of Ham (Sanders 1969; Mamdani 2001). Although this belief fell out of fashion during the Enlightenment, the hypothesis was revived with Napoleon's invasion of Egypt in 1798 (Sanders 1969: 524). Napoleon's invasion introduced French archaeologists and scientists to the Nile civilisations, whose discovery's created two problems: first, "Negroid" descendents of Ham were not believed capable of such accomplishments and second if Noah had cursed Ham how could the earlier Hamites have achieved such highly original achievement (Sanders 1969: 525). In response to this conundrum biblical scholars re-interpreted the Bible and found that it was Canaan and not Ham that had been cursed. Others proposed that the "Negroids" were not direct descendants of Ham and instead the Hamites were actually white Caucasoid (Sanders 1969: 527). Thus, cultural accomplishments encountered in Africa were removed from the 'Negro' and were transferred solely to the Caucasoid Hamites (Sanders 1969: 521). In order to explain the lack of a contemporary Caucasoid race in sub-Saharan Africa, it was suggested that as the Hamites had travelled further south into the continent they had been corrupted and assimilated within the Negroid race (Mamdani 2001: 82-83). However, where Europeans encountered African societies that they considered to be complex they suggested that these were the living remnants of the civilising influence of the Hamites. Thus, when Europeans encountered the politically complex kingdoms of Rwanda, Burundi and Karagwe, amongst others in Great Lakes Africa, they quickly came to believe their pastoral rulers to be descendants of the Hamites. The Hamite construction was fully integrated into Great Lakes Africa histories produced by Europeans, as demonstrated by this example:

> "Bimanuka lived in the same period as Basita, the first Hamite Kings who reigned in Bunyoro around 1000-1100. Bimanuka were not related

> to Basita, but they were Hamites like them. They managed to escort and follow them, with their cattle with long horns, from the upper Nile towards the centre of Africa in the search for bigger pastures. When Basita settled in Bunyoro, Bimanuka progressed towards the south and through Nkole and Mpororo, they reached Rwanda in Umutara."(Delmas 1950)

In Rwanda, pastoral Tutsi elites from the ruling dynasty, with their distinctive tall, thin physical appearance and their long straight noses, were likened to the "Hamitic" Ethiopians. Thus, the Tutsi appeared to Europeans to be a product of a superior, alien, "Hamitic" race living amongst the short indigenous and inferior Hutu "Negros" whom they must have conquered prior to establishing the Nyiginya Kingdom, the "*Antecedents to Modern Rwanda*" (Vansina 2004).

This hypothesis helped legitimise the European colonial agenda, by providing a colonial precedent. In other words, if earlier "alien" races (i.e. Tutsi) had migrated, conquered and brought 'progression' to Rwanda then the path was open for Europeans to do much the same. Thus the Belgian administration and the Catholic Church constructed a system of indirect rule based on the racial premise of the "Hamitic Hypothesis" (Mamdani 2001: 87-88). The Belgians would decide the policies and the supposedly 'racially superior Tutsi' minority would impose them on the 'racially inferior Hutu' majority. This situation was unique to Rwanda and Burundi. Whilst other ethnic groups in Great Lakes Africa were identified as "Hamites", such as the Bahima, they were not given institutionalised superior status (Mamdani 2001: 43-35). Between 1927 and 1936 this ethnic separation was achieved in Rwanda by the systematic racialisation of education, administration, taxation, religion and finally the population (Mamdani 2001: 88). Initially in education there was a straightforward policy of favouring Tutsi elites, but later specialist schools were set up to teach Tutsi to administrate and Hutu to labour (Chrétien 2003: 273-4; Mamdani 2001: 89). This created a wealth of able Tutsi to fill the new administrative positions created by the Belgian resident Georges Mortehan, who in 1925-26 removed the "three-chief system", a hierarchy that had incorporated both Hutu and Tutsi chiefs, and replaced it with a Tutsified two-tier system. This drastically reduced Hutu presence in the ruling group (Chrétien 2003: 270-71; Mamdani 2001). The situation was worsened by colonial taxes imposed on Hutu agriculturalists, in order to make them grow particular crops and undertake forced labour (Mamdani 2001: 94-98). This further shifted the burden of the client-patron relationship away from elites and towards the poor, altering a more reciprocal relationship to one based upon coercion (Chrétien 2003: 272). Social identity was ultimately and fully polarised with the official census of 1933-34 that gave every Rwandan an official identity card, detailing amongst other things their *ethnie* or *ubwoko*, the latter being the Kinyarwanda term meaning mono-dimensional identity (Eltringham 2004: 18; Mamdani 2001: 98-99). In this case *ethni*e equated to racial difference manifested in physical characteristics and subsistence orientation. Ethnie was identified through the measurement of particular anatomical features alongside subsistence practice. For example, an individual with a large number of cattle could be considered Tutsi whether or not they were also involved in agriculture. This resulted in the splitting up of families whose members displayed a variety of anatomical proportions and who had disproportionate access to cattle. Never before in Rwanda had Tutsi, Twa, and Hutu been officially understood as races whose identity could be reduced to biological factors (Mamdani 2001: 80).

Although there were rebellions against Belgian rule by both Hutu and Tutsi (Chrétien 2003: 298), the racial ideology permeated, and was adopted, throughout society. Hutu were believed to be an indigenous race and Tutsi an alien one. This is perhaps best illustrated in the works of Alexis Kagame (1947, 1952, 1954: 55-56, 1959, 1972, 1975: 27-28); a court ideologue who was both subject and analyst and who promoted the idea that Tutsi had Ethiopian and Hamitic origins. To Kagame and other elite Tutsi, it was an advantage to be an alien race because their racial superiority justified the subjugation of the Hutu. However, at independence the influence of this ideology was to be reversed in favour of the Hutu majority. It was adopted by Hutu intellectuals and was presented in the Bahutu Manifesto, *Notes on the Social Aspect of the Racial Native Problem in Rwanda* (reproduced in Eltringham 2004: 19). However, the emphasis of Hutu racial ideology was not foreign superiority, but indigenous legitimacy. The same set of principles that justified independence from European colonisers was now used against the 'foreign' Tutsi. At independence, the vast numerical majority of the Hutu won them power in multiparty elections and they set about reversing racial policies. Thus, by 1973 there was a ten per cent quota established to restrict the presence of Tutsi in schools, alongside similar policies in the professional sphere (Eltringham 2004: 21).

The racially constructed past continued to haunt Rwanda prior to and during the 1994 Genocide. As described by Des Forges (1999: 31):

> "Organizers of the genocide, who had themselves grown up with . . . distortions of history, skillfully exploited misconceptions about who the Tutsi were, where they had come from, and what they had done in the past. From these elements, they fueled the fear and hatred that made genocide imaginable." (Quoted in Freedman et al 2009: 663)

The construction was repeated in popular publications with Hutu nationalist sympathies, such as Kangura and La Medaille Nyiramacibiri, and in the broadcasts of Radio Television Libre Des Mille Collines (RTLM). But the "Hamitic Hypothesis" was perhaps most chillingly recalled on the 22nd of November 1992 by Leon Mugesera, a prominent Hutu politician, whom, whilst referring to Tutsi in a public speech said, "Can't you read or hear? Let me tell you that your home is Ethiopia and that we shall send you by the river Nyabarongo so that you'll get there quickly" (translated by Eltringham 2003: 22). Mugesera was referring to a recent massacre of Tutsi whose bodies had been thrown in the Nyabarongo River a major tributary of the Kagera and therefore associated with the Nile. Colonially constructed racial understandings of Rwandan history were thus used again as an emotive and effective rallying cry during the 1994 Genocide.

2.4 The Contemporary Context of Research

The historical perspective presented above is based on a critical reading of the available evidence presented by social historians including Mamdani (2001), Chrétien (2003) and Eltringham (2004). However, other perspectives exist both inside and outside of Rwanda. The main views can be broadly characterised by positions held by three separate groups: the Rwandan Government, Hutu opposition and western academics.

The current Rwandan Government promotes a single official narrative that states the cause of Rwandan 20th century conflict was colonial ideology and the construction and implementation of the Rwandan "Hamitic Hypothesis" as a ruling principle, and that this was compounded by bad governance in post-colonial Rwanda (e.g. Shyala 2006). Their authoritative history dismisses any 20th century Tutsi oppression of Hutus by placing responsibility for these acts on the colonisers who dictated the format of Tutsi leadership. Furthermore, any 19th century oppression is dismissed as European misinformation or misunderstanding communicated to foster division under colonialism, when in fact pre-colonial Rwanda actually enjoyed social equality (Buckley-Zistel 2009: 31). The second position, constituting direct opposition to the government, accepts that European influence had a negative impact but emphasises Tutsi oppression in pre-colonial and colonial Rwanda as a causal factor (Pottier 2002; Longman and Rutagengwa 2004; Straus 2006). This argument suggests that current government position, which is also the most widely adopted in the non-Rwandan, non-academic sphere, is the result of knowledge construction under the Rwandese

Patriotic Front (RPF) before, during and after the civil war, created to legitimate a new Tutsi dominated government (Pottier 2002: 109-129).

In contrast to these single narrative explanations there is a compromise view, held most commonly by western analysts and academics, that advocates a multi-narrative approach which acknowledges many historical causes and that the conflict cannot be understood without recognition of political processes in both Rwanda and Europe in the 19th and 20th centuries (e.g. Mamdani 2001; Eltringham 2004). (A summary of this perspective has been presented above in section 2.3). Despite disagreement over the principal causes of the conflict, all positions agree that the racial construction of history had a negative influence, is untenable today, and should be deconstructed. This section will now discuss in more detail the Rwandan Government's position, before outlining how the racial construction of history continues to be problematic in contemporary Rwanda in the field of history teaching. The government's view is important here because it is the dominant view in Rwanda and it directly affects how the pre-colonial past is presented in every facet of Rwandan life, including education.

The Rwandan Government's view regarding the pre-colonial history of Rwanda is perhaps best expressed in Shyala's (2006) study *The Rwandan Conflict: Origin, Development, Exit Strategies* commissioned by The National Unity and Reconciliation Commission, a powerful government ministry in contemporary Rwanda. Shyala (2006: 8-10) suggests that the Rwandan conflict is identity-based and had three causal factors: colonial heritage, chronic bad governance and inadequate and conflict generating political systems. Shyala (2006: 10) suggests that colonial heritage as a causal factor developed along three main lines:

> "The ideological line focused on the Hamitic myth and the theories about the populating of Rwanda, the institutional line related to the artificiality of the borders of states inherited from colonization and the political line based on "divide and rule" practices which have characterized colonial policies and which are at the root of the political instrumentalization of ethnicity in modern African states, in Rwanda in particular."

Shyala then continues to deconstruct the "Hamitic Myth" and to present the official utopian version of pre-colonial history before tackling the other causal factors identified. In each case the failure to manage and eradicate the negative ideologies inherited from colonial times is blamed (Shyala 2006: 18). Finally, Shyala (2006: 38) concludes that, "The Rwandan conflict is neither racial nor ethnic nor caste-based. The Hamitic theory and divisionist ideologies which derived from it are its main locomotive." Thus, the Rwandan Government has identified racial historical presentations of pre-colonial Rwanda as a primary cause of the conflict. However, despite promoting engagement with history (see quote below) as a strategy with which to promote reconciliation, this only relates to engagement with 20th century history and not the pre-colonial past that has been misrepresented (Shyala 2006: 29-35).

> "For the National Unity and Reconciliation Commission, the concept of Unity and Reconciliation must not focus on the genocide context but on all the causes of the Rwandan evil by considering the historical and ideological framework. It is in fact the reconstruction process of the national identity and reconciliation of the Rwandan with himself/herself and with his /her nation. Furthermore, in order to reconcile Rwandans, one should reconcile their history" (Shyala 2006: 35)

However, it is not only the 20th century history of conflict that must be engaged with and discussed, but also the pre-colonial past according to which so much recent division has been justified. In the absence of such debate one ideologically constructed authoritative past is simply replaced by another. Whilst it is recognized that the latter is no doubt an improvement, because it is designed to foster unity and reconciliation instead of division and exclusion, it is also problematic. Authoritative single narrative histories, whilst potentially increasing national security by restricting debate, have the potential to inadvertently promote resistance and the production of equally biased unsubstantiated opposing pasts.

Whilst the insistence on a single authoritative historical narrative is not supported by most non-Rwandan academics, historians generally accept the Government's critique of colonial and post-colonial constructions of Rwanda's history (Newbury 1988; Vansina 1998; Des Forges 1999; Newbury and Newbury 2000). However, Freedman et al. (2009: 676) have identified three points of contention: Firstly, historians do not agree that pre-colonial Rwanda was a nation state with fixed borders (e.g. Prunier 1995). Secondly, historians suggest that clan status should not be emphasised over and above that of lineage and regional identities (e.g. Newbury 1980). And finally, there is much disagreement on all sides about the origin and even the existence of ethnicity based identity in pre-colonial Rwanda (e.g. Newbury 1988; Vansina 2004). (These themes will be returned to in more detail in Chapter 3 section 3.1 during the discussion of the contribution of social history).

2.5 History Education in Post-Genocide Rwanda

The need to engage with the pre-colonial past is most evident in the education system. Despite government intentions to promote academic engagement with, and deconstruction of, the past, history teaching was suspended in 1995 because the syllabus content was racial, divisive, and therefore impossible to teach in the new post-genocide climate (Pottier 2002: 127; Buckley-Zistel 2009: 41-42). Efforts were made to resolve the issue and in 1997 a new syllabus was created. However, the new syllabus was not implemented because it was impotent without new teaching resources, including those to train teachers and textbooks (Obura 2003: 99). The decision to suspend history teaching was a drastic but necessary emergency measure. However, the very idea of suspending history is problematic. It is impossible to stop production of history. Education programmes can be shut down, but histories will always be constructed with the tools and materials available. Unfortunately, in the context of Rwanda this means that people have constructed histories in post-genocide Rwanda with racialised and divisive tools and materials that were available prior to 1994 (e.g. Overdulve 1997; Sebasoni 2000).

Under colonialism, the institutional and intellectual racialisation of the Rwandan education system was total. Since the establishment of a European style education system, one 'race' has benefited disproportionately at the expense of the others. As Obura (2003: 98) suggests, "the education system was used as an instrument for fomenting exclusion and hate. Lessons from history were concretized in the daily life of the school itself, first of Bahutu, then of Batutsi, and the continuous exclusion of the Batwa…" The 'racial' past not only dictated the school intake policy but also influenced the entire syllabus, "After independence distorted historical perceptions were included in civic education classes, and were incorporated by the total curriculum and the education system itself" (Rutembesa 2002: 83, quoted in Obura 2003: 103). As Mamdani (2001: 89) suggests, the education system in Rwanda was "the womb of racial ideology".

It is clear that the education system needs new alternate presentations of the past if history is to be successfully reincorporated. This need has long been recognised within Rwanda. In 1995 Anastase Gasana, the then Rwandan Home Affairs Minister stated that a government priority was to re-write history books (Pottier 2002: 127), and Obura (2003: 104) found that outside of government, "Seminars, workshops and conferences that have addressed the issues over the past eight years; have demonstrated remarkable consensus on the need to reconstruct the history of

Rwanda, and to teach children about unifying historical forces in Rwanda instead of divisive ones". Today, there are continuing initiatives to reincorporate history into the education system. However, despite investment and co-operative initiatives from governmental and non-governmental stakeholders, this aim is yet to be successfully achieved.

Freedman et al (2009: 663-664) have worked on educational issues in Rwanda since 2001 and following a United States Institute for Peace grant began a collaborative research project with Rwanda's Ministry of Education, Science, Technology and Scientific Research that asked the questions:

> "How can material for a history curriculum be developed to avoid propaganda? What tensions surface when teachers negotiate an increasingly repressive political climate? What opportunities can encourage and support democratic teaching and debate about multiple perspectives"

As part of this project Freedman et al (2006) and the ministry published *The Teaching of History: A Participatory Approach*, which was a new curriculum for secondary schools, meant as a reference book for teachers that encouraged the use of sources, discussion and participation. This curriculum was tested in two workshops and five teacher education seminars (Freeman et al. 2009: 669). Unfortunately, since then the project has come to a halt and the curriculum is yet to be adopted nationally because it has lost governmental support due to the reluctance of teachers and other stakeholders to discuss pre-colonial identities at a time when the law of divisionism appears to outlaw this practice (Buckley-Zistel 2009: 46).

The participatory approach promoted by Freeman et al (2006, 2009) and initially supported by the government represented a positive move away from simply writing and teaching the authoritative single narrative "History of Rwanda". Freedman et al. (2006) separated the curriculum into four chronological modules: Pre-Colonial Rwanda (Origin-1897), The Colonisation of Rwanda (1897-1962), Post-Colonial Rwanda (1962-1990) and Rwanda Post-Colonial (1990-1994). Within the pre-colonial curriculum the focus was placed on clan history because historically all three social groups, Hutu, Tutsi and Twa, were represented in each clan, thus promoting the understanding of a shared peaceful past (Freedman et al. 2009: 677). Yet, whilst this curriculum was clearly meant to foster reconciliation, and can be lauded for its efforts, it fails to discuss anything that happened before the establishment of clans and the development of kingdoms in the region, although the Renge are briefly mentioned as a precursor to a Rwandan clan. It discusses nothing of the achievements or diversity that existed prior to the establishment of the kingdoms, nor does it recognise that humans have occupied the territory of modern Rwanda for over 10,000 years. Whilst disappointing, Freedman et al.'s (2006) limited approach is understandable in the present context where reintegration of history teaching, suspended now for fifteen years, must be done slowly and sensitively. Unfortunately, Freedman et al.'s (2006) participatory approach, which promoted the creation of multiple narratives based on various individual discursive interpretations of the sources, came into conflict with the official authoritative single narrative approach favoured by the government. Thus, Freedman et al. (2009: 685) conceded, "that teaching history cannot be divorced from the state's goal of building a national or civic identity. The teaching of history therefore remains subject to government policies that dictate curricular content and pedagogic practices."

During a final research trip to Rwanda in March 2009 it was found that the government were continuing to work on initiatives that would allow for the speedy and smooth reintegration of history teaching into Rwandan secondary schools. This included a government committee of politicians, educationalists and heritage professionals reviewing old textbooks in order to identify and remove potentially offensive or divisive material. This practice is common in post-conflict states, such as Bosnia and Herzegovina (Low-Beer 2001). However, the process is reductive because it simply removes the problematic areas without enhancing the record with new material or interpretations. Furthermore, it is academically problematic because it is likely that politically unfavourable elements that do not conform to the official narrative will simply be removed whether or not they are evidence based. Yet, in the absence of new materials, based on recent research, that are untainted by racial constructions and divisionist policies, the Rwandan Government are limited in the routes that are available to them.

2.6 Summary

This chapter has suggested that the racial construction of Rwanda's past was a product of late 19th and 20th century politics, and that this construction has contributed to 20th century conflicts culminating in the 1994 genocide. This construction continues to be problematic and in the absence of any other acceptable narratives with which to replace it, combined with the reluctance of the Rwandan Government to implement a participatory approach based on extant sources, the re-introduction of history teaching into secondary schools has been prevented. The present research does not support the government's attempt to promote a single authoritative narrative. However, it does support a re-investigation of the pre-colonial past in order to generate new tangible evidence that can further contribute towards discussion and debate in Rwanda and to the re-introduction of history teaching in the future.

Chapter 3

Developing a Theoretical Framework

The preceding chapter established a contemporary justification for the reinvestigation and reconstruction of Rwanda's pre-colonial past. The aim of this chapter is to develop an appropriate theoretical framework through which to investigate that past. This will be achieved by first exploring the contribution that social history has made to the deconstruction of colonial and court presentations of Rwanda's past. Secondly, this chapter will discuss how archaeology has previously been applied in Great Lakes Africa and specifically Rwanda. Finally this chapter will draw on the themes and concerns identified and will propose a set of research objectives, that are both academically and politically based, that will form the backbone of a new, more appropriate, archaeological framework though which to approach Rwanda's pre-colonial past.

3.1 The Contribution of Social History

Rwanda has one of the most extensive written historiographies of any African society and for much of the 20th century historical studies reproduced and reinforced the view that Rwanda's past is known, made up of fixed elements and was tied to a central Rwandan court (Vansina 2004: 198; Newbury 2009: xxxi). The evidence for these accounts was derived from histories preserved as oral traditions that detail life during the kingdom era in the late 2nd millennium AD. However, these accounts have come under scrutiny more recently due to their uncritical acceptance of the evidence (e.g. Chrétien 2003; Vansina 2004; Newbury 1998, 2009). Critical readings by social historians have demonstrated that these works are often biased in favour of the preferred official narrative of the time and that the oral traditions have continually been revised to suit the prevailing political opinion. Furthermore, the oral traditions are often narrow in their scope, mostly concerning themselves with court and ritual life (Vansina 2004: 4).

The oral traditions were officially recited and conserved between the 17th and 19th centuries by official ideologues employed by the royal court of the Nyiginya Kingdom, the progenitor of the nation of Rwanda (Vansina 2004: 4). The histories became entrenched in court life, with 300 official historical tales and 175 different dynastic poems said to have been amassed by the beginning of the twentieth century (Vansina 2004: 221). Before European contact, these traditions were remembered and recounted orally, being passed from generation to generation, often learnt by rote, but elaborated by each successive generation to support the political actions of the court (Vansina 2004: 6). After European contact at the end of the nineteenth century (e.g. Ramsay 1898 and Götzen 1899), Europeans began to write down some of these oral traditions (e.g. Loupias 1908) and by 1917 de Briey (1908) had recorded the first dynastic succession list (Vansina 2004: 7). In the 1930s, as interest increased, a set of collaborators emerged from the royal court that communicated their preferred version of Rwandan history to European scholars such as Schumacher (1956) and Delmas (1950). However, the most influential histories were recorded by a Rwandan, Alexis Kagame (1947, 1951, 1952, 1954, 1959, 1961, 1963, 1969, 1972, 1975, 1981) (also see Chapter 2 section 2.3), who by using Schumacher's earlier structure and his own privileged position as a court ritualist was able to gain access to a wide range of officials and was able to write a much richer history than his predecessors. Kagame published some of his histories in Kinyarwanda and thus, unlike other scholars, found an audience both within Rwanda and the international sphere, helping his work to become the official version of history (Vansina 2004: 5).

Whilst court traditions are of considerable value, they are "produced by and for the elite of the society, and naturally emphasise events and deeds which promote continuity within the centralised structure of the polity" (Reid and Lane 2004: 9). Thus, official histories based on oral traditions are inherently biased because they present only one strand of a complex past. Therefore, where differing versions of the same histories from clans, lineages and craft specialists exist these must be collected to enable a more nuanced reading of the oral traditions (Reid and Lane 2004: 10). Despite the recent adoption of this critical approach (e.g. Chrétien 2003; Vansina 2004; Newbury 2009), many elements of Kagame's model persist in the contemporary official narrative (e.g. Freedman et al. 2006).

Since the late 20th century social historians have questioned fundamental components of Rwanda's 'known' past through comparative studies of frontier and court histories (e.g. Newbury 1987) and through critical reviews of the recorded traditions (e.g. Vansina 2004). Their results suggest that 20th century presentations of Rwanda's pre-colonial past often reflect how the court of Rwanda wished itself to be perceived at the end of the 2nd millennium AD and are not an objective history of Rwanda. This deconstruction is important for this research because it demonstrates how official histories constructed in both pre-colonial and colonial Rwanda have stereotyped Rwanda and that localised, subtler approaches can produce a more nuanced multi-vocal past.

The image of Rwanda's past promoted by court ideologues was of an ancient kingdom, produced by a supernatural creator, which was immediately centralised yet autonomous, with linguistic and cultural unity (Vansina 2004: 198-199). This construction suggested that a utopian state had been preserved for 100s of years and that social inequality and disharmony was only a relatively recent occurrence produced by Kigeri Rwabugiri's expansionist policies and later by European divisionism. In contrast early European explanations suggested that social inequality was the product of successive waves of ethno-racial migration. Although they continued to characterise Rwanda's past as essentially known and static with change only occurring in dramatic episodes caused by outside influences (e.g. Hiernaux 1956; Maquet 1961). However, more recent work by social historians has questioned the evidence for these homogenised pasts and has highlighted more complex and dynamic internal historical trajectories. For example Vansina (2004: 198) has found evidence that linguistic and cultural unity were not present in the early stages of the kingdom but were a historical product of expansionism that began in the 18th century and continued through until the early 20th century. Furthermore, pre-colonial Rwanda was not a utopian egalitarian state and *ubuhake*, client-patron ties, have existed since the beginning of the kingdom, subtly changing over time. Vansina (2004: 199) suggests that these biases are the direct result of a history seen through the eyes of a privileged courtier, Alexis Kagame. This review will now focus on the main elements of the social historical deconstruction.

The official dynastic chronology records an unbroken line of royal succession from 959 AD to 1959 AD, thus placing the **antiquity of Rwanda** in the late 1st millennium AD. However, Newbury (2009: xxxiv) and Vansina (2004: 198) suggest that the succession is extremely unreliable before the 17th century and that the official dynastic chronology has been artificially extended by the court ideologues to add to the legitimacy of the ruling dynasty. Subsequently, European scholars recorded the adapted dynastic list (e.g. Briey 1920) believing it to be accurate because it was carefully cross-referenced with lists from neighbouring kingdoms, and similar processes took place across the region where Europeans encountered privileged royal elites, for example in the kingdoms of Bunyoro and Buganda (see Heinge 1974). However, Newbury (2009: xxxv) questions the autonomy of these chronologies because Rwanda had recently undergone an episode of recent aggressive expansionism and may have been able to influence their neighbours' histories to conform to their own. Furthermore, Rwanda had one of the most developed historiographies in the region and it was one of the first to be recorded by Europeans. Thus, when inconsistencies in neighbouring dynastic chronologies were identified the Rwandan list was used to correct them.

The **clans** of Rwanda, throughout the 20th century (e.g. d'Hertefelt 1971) and in the current official narrative (e.g. Freedman et al. 2006) have been presented as fixed, permanent, 'primordial' social groups that antedate the kingdom and were the most important social categories in pre-colonial Rwanda (Newbury 1980: 389, 2009: xxxi). However, Newbury (1980: 389) suggests this presentation has been based on an uncritical reading of the Rwandan past. Through his analysis of Marcel d'Hertefelt's (1971) *Les Clans du Rwanda Ancien* Newbury (1980) has identified numerous inconsistencies within clan concepts. For example, the belief that all clans began as solely Tutsi or Hutu groups and were sustained through patrilineal succession (e.g. Kagame 1954: 105) yet came to contain stable percentages of Hutu, Tutsi and Twa individuals (Newbury 1980: 390-391). Instead Newbury suggests that clans and clan concepts were not stable but were historical constructs that changed both with the development of new internal dynamics and through varying alliances. Clans were subject to political forces and whilst clans could be destroyed or amalgamated with other clans, new clans could also be formed (Newbury 2009: xxxii; Vansina 2004: 198). For example, different components within clans could sometimes evolve into sub-clans (Chrétien 2003: 92), and furthermore, both Newbury (1980, 2009) and Vansina (2004) suggest lineage and kin groupings were more important identities than clan groups in pre-colonial Rwanda and thus clans should not be over-emphasised.

The official pre-colonial and Colonial histories presented **kingship** in Rwanda as an all powerful, well-defined, autonomous and divine role (e.g. Kagame 1947, 1951). However, Newbury (2009: xxxiii) suggests that kingship in pre-colonial Rwanda was not a rigid concept and was actually explicitly manipulated as the court sought to manoeuvre greater advantages and the kings of Rwanda were neither "autocratic nor omnipotent" (Vansina 2004: 5, 198). For example, the king was not the only important actor in society, the queen mother was also an independent authority in her own right, and the power and influence of court ritualists and counsellors should not be ignored (Vansina 2004: 66). Furthermore, the concept of divine kingship did not appear until the arrival of Europeans influenced by the work of Frazer (1890) (e.g. Roscoe 1911). However, this model failed to appreciate that

Rwandan kingship was built on a popular power base and that the position involved the creation, and careful implementation, of political strategies and manoeuvrings to balance both the ambitions of the king and the needs of society (Newbury 2009: xxxiv). Thus, the imposition of divine kingship distanced the king from his subjects and the popular legitimacy of the king was eroded and this aided the dissolution of the monarchy in 1959.

The current official narrative suggests that **social hierarchy** in Rwanda is a relatively recent development and that until the late 19th century Rwanda was largely egalitarian (Freedman et al. 2006). However, critical comparisons of both frontier and court oral traditions have identified a slow process of social disaggregation developing from at least the 18th century (Newbury 1987, 2009: xxxii). Whilst processes were accelerated under Rwabugiri it was a continuous process that had begun in earlier periods (Vanisna 2004: 165). However, for the purposes of reconciliation the Rwandan government have preferred to promote Alexis Kagame's (1954, 1975) utopian view of the past. Whilst their motivation is laudable, it continues to re-produce a naturalised, static, fixed and known past, and ignores the potential for dynamic historical processes at work in pre-colonial Rwanda.

For much of the 20th century and in some recent historical narratives, **social identity** in Rwanda was believed to be the result of three successive migrations of *Twa* foragers, *Hutu* farmers and *Tutsi* pastoralists (e.g. Hiernaux 1956; Maquet 1961; Overdulve 1997; Sebasoni 2000). However, there is a growing consensus among social historians that these identities were slowly developed within the country and therefore cannot relate to migrations, although gradual migrations may have taken place (Vansina 2004: 198). The ethno-racial migration model is the most prominent of all the Rwandan historical stereotypes. It has been blamed for divisionism and conflict in the 20th century and thus has received the most attention during the deconstruction and will thus receive the most attention here.

Vansina (2004: 35-36) has identified two main types of identity in pre-colonial Rwanda, territorial and non-territorial identity. There are two territorial identities *Renge* and *Rwanda* and three non-territorial identities Hutu, Tutsi, and Twa. *Renge* means mountain people and referred to a single group of people on the northern borders of the country whilst *Rwanda* refers to a large variety of groups and was used with a geographic qualifier to refer to a particular group identity, such as *Rwanda Budaha,* literally meaning the people of Budaha. The non-territorial identities, Tutsi, Hutu and Twa, have a more complicated history. Twa refers to a group of short "pygmy" hunter-gatherers commonly associated with forest or marsh living and pottery production in western Great Lakes Africa (Vansina 2004: 36). Whilst they had limited options of inter-marriage with other social groups, and had hostile relations with farmers because of tensions over access to land, they also enjoyed interactions through trade for forest and agricultural products (Vansina 2004: 36). The lack of opportunities for inter-marriage due to their demographic, geographic and social marginalisation has meant that concepts of Twa identity have remained relatively stable and conservative. However, the Twa did not live in social isolation, for example, Twa were present in all of the Rwandan clans and oral histories record an instance where a Twa was able to enter into patron-client based pastoral relations and obtain cattle (Kagame 1961: 27-28). Furthermore, from the late 19th century, during the reigns of Rwabugiri and Musinga, a Twa section of the royal army was introduced as a personal guard to the king (Schumacher 1958: 424-425, 621). The Twa also had a permanent presence at the royal court and played important roles in the founding traditions of the Rwandan dynasty (Vansina 2004: 69, 189, 193). However, to this day Twa have remained a peripheral minority and whilst they are no longer able to practise hunting in modern Rwanda they are still known as potters. In contrast, concepts of Hutu and Tutsi identity have been subject to long processes of political evolution.

The term Tutsi has the longest history and Hutu only appeared later as an expression of otherness in relation to Tutsi, "when social and political transformations required such a definition" (Eltringham 2004: 13; Newbury 1978: 17). Before the establishment of the kingdom there were a variety of possible meanings for Tutsi. For example it may have referred to all herders, one category of herders from the south or just a political elite amongst herders. Although the evidence is inconclusive, Vansina (2004: 37) suggests that Tutsi was originally a self-referential term for a social class amongst herders, a political elite similar to those found in Burundi and Karagwe. In contrast when the term Hutu first appeared in the 17th century it was not self-referential but was derogatory, a term used by elites to refer to "rural louts" (Vansina 2004: 134). The word could be used for anybody, including Tutsi, Twa and all foreigners, which one wished to refer negatively to. However, these identities were not stable and these concepts were continuously evolving in response to internal political developments.

The meanings of Hutu and Tutsi have received a lot of attention in both the popular media and in academia and the debate can be characterised by two opposing positions: "distinct difference" versus "no-distinct difference" (Mamdani 2001: 44-

46). The "distinct difference" argument rests upon four main points *phenotype, genotype, memory* and *archaeology* and suggests that differences in height and blood types conclusively point to significantly different geographic origins for Hutu and Tutsi, who thus must have come into contact through large scale population movement and that oral histories and archaeological remains support. The polemic "no distinct-difference" argument (Mamdani 2001: 48-49) refuted these claims suggesting that differences in height and blood types were created through social selection and that the oral histories and archaeological explanations were biased because they were recorded or produced in a racial climate when migration was a dominant explanatory paradigm. Whilst the "no-distinct difference" proponents do not deny that migration may have existed they question its relevance based on four arguments.

The first argument highlights the distinction between migration and conquest. For example, Vansina (2004: 198) suggests that any migration would have been a slow process of acculturation and infiltration that took place over centuries and would not have fitted a conquest model. The second questioned the presumed link between Tutsi migration and the arrival of pastoralism and statecraft in the region. Archaeological (Reid 1994/5, 1996, 2001; Robertshaw 1994, 1999; Gautier 1983; Van Grunderbeek et al. 1983), linguistic (Schoenbrun 1998) and historical research (Vansina 2004) have demonstrated that pastoralism and cattle keeping has been practiced in Rwanda and the surrounding region for over one thousand years and archaeological examples of early polities have been identified that trace the slow process of centralization, and the indigenous development of statehood, in the region. The third argument questioned the association of cultural change with the movement of peoples. Historians (Lwanga-Lunyigo and Vansina 1998; Vansina 2004) and archaeologists (Reid 1994/5, 1996, 2001; Robertshaw 1994, 1999) suggest that socio-political and economic changes that occurred in the region are better understood as internally driven processes and they have questioned the western assumption that all change in Africa must be externally driven. The fourth argument questions the presumption that modern Hutu and Tutsi were the pure offspring of separate Hutu and Tutsi ancestors. For example, these social identities shared economies, armies, language and kin groups, and inter-marriage was frequent (Mamdani 2001: 50-54). Whilst divisions were to grow between Hutu and Tutsi, largely due to the imposition of *uberetwa*, a daily form of servitude enforced upon the land holding 'Hutu' by the ruling Tutsi dynasty (Vansina 2004: 135), under King Rwabugiri (see Chapter 2 section 2.2), it is clear that through intermarriage and interbreeding, and social fluidity, Hutu and Tutsi are not the "pure" descendants of "original" Hutu and Tutsi generations.

Following his review, Mamdani (2001: 57) suggests a more reasoned approach to the identity and origin debate because both arguments are untenable. For example, the "no distinct difference" argument ignores the significance of new arrivals whilst the "distinct difference" argument fails to recognise the potential for slow migration and subsequent physical and cultural mixing. As an alternative Mamdani suggests a weakened model that incorporates both arguments where migration is a slow, gradual potentially peaceful, infiltration, taking place over at least hundreds if not thousands of years, alongside social selection controlled by factors such as intermarriage and differing diets. Both Mamdani (2001: 56) and Vansina (2004: 36, 198) suggest that Hutu and Tutsi are not racial, economic, socio-biological or cultural identities but are better understood as ever changing and evolving political identities. Hutu and Tutsi have centuries of shared history and it is apparent that during their history meanings have changed both diachronically and synchronically and thus, they are polyvalent identities (Eltringham 2004: 13).

This review has described how core themes in the official presentations of Rwanda's past were produced by uncritical readings of court traditions and how this has resulted in a historical narrative formed of fixed boundaries that confirm state legitimacy and central policy. In response to this construction Newbury (2009: xxxii) suggests that future research must focus on frontiers, personal experience, multiple agency at local scales. Only through comparison of the histories of peoples outside of the court with those within it can a more objective and multi-faceted past be developed. Thus, "studies must be empirically based, locally themed and broadly inclusive" (Newbury 2009: xxxi). However, whilst these themes can be compared to similar post-processual objectives within archaeology, these have yet to be applied to Rwandan archaeology.

Recent social historical research has begun the slow task of generating alternatives to the official single-narrative by championing a multi-vocal historically and locally, contextualised past. However, as a result of their critical re-analysis of the dynastic chronology, an ancient dynastic history spanning over 1000 years has been drastically reduced.

Moreover, many elements of the deconstruction are readily ignored in contemporary Rwanda because they are believed to be politically unfavourable. The government currently favours a single narrative, non-negotiable, utopian, socially egalitarian past (Buckley-Zistel 2009: 31) and are thus more inclined to favour Kagame's histories (e.g. Freedman et al. 2006; Shyala 2006). Furthermore, in the absence of empirical and tangible data the social historical critique may be devalued and viewed by relativists as yet another interpretation of the same old biased sources. Therefore, a need exists for new research methods to be applied to the Rwandan pre-colonial past that can explore greater time depths than those covered by oral traditions and that can produce tangible, scientific, empirical data. Archaeology is well placed to respond to this need and has the potential to explore new histories that can contribute towards a more nuanced and subtle understanding of pre-colonial Rwanda as part of a multi-narrative approach. However, archaeology is not new to Rwanda or Great Lakes Africa, and like history, has not been immune to ethno-racial dogmas.

3.2 Archaeological Theory and Great Lakes Africa

Europeans brought archaeology to Rwanda at the beginning of the 20th century and enthusiastic amateurs who had an interest in the Palaeolithic undertook the first archaeological investigations (de Maret 1990: 110; Robertshaw 1990). At first there was little regard for later periods, which were not deemed relevant to the European practitioners of "Colonial Archaeology", who were concerned with early man and not the history of Africans (Trigger 1984: 362). Boutakoff's (1937) cave excavations, which revealed a complete archaeological sequence from the Stone Age to the Iron Age, were a rare exception. It was not until the 1950s that the first professional programmes were initiated, such as the Institute Recherche Scientifique en Afrique Centrale (IRSAC) (Vansina 1994), and archaeology expanded intermittently in a variety of directions to include more recent time periods (see Hiernaux 1954, 1968; Hiernaux and Maquet 1957, 1960; Nenquin 1967a; Van Noten 1983; Van Grunderbeek et al. 1983). Unfortunately, growing political tensions in the 1980s led to the cessation of all archaeological research, and despite sustained stability since 1994, archaeological fieldwork did not resume. This failure is partly due to a lack of funds to ignite an indigenous training programme but also, it is believed, because foreign archaeologists have felt logistically or emotionally unable to engage with post-conflict, post-genocide Rwanda. Thus, the past in Rwanda is yet to benefit from the themes and techniques developed over the past three decades and therefore the extant archaeological explanations are largely confined to a period in which normative culture historical models and ethno-linguistic agendas were the norm in African Archaeology.

Culture-History was the dominant theoretical model in Europe when archaeologists began working in Great Lakes Africa. V. Gordon Childe was the first to systematically apply the concept of archaeological cultures, in his *The Dawn of European Civilization* (1925), and "it quickly became the working tool of all European archaeologists" (Trigger 1989: 169). Childean culture-history divided prehistory into cultural units with empirically established chronological and geographic boundaries to create a complex framework of European cultures (Sheratt 1989: 176). Childe developed his theoretical approach in *The Danube in Prehistory* (1929) where he set out a polythetic culture-historicism that identified cultures based on a number of unifying traits. Within Childe's model some materials were given different cultural values. For example, ceramics were high value because these were believed to be resistant to change and thus a good indicator of cultural unity, whilst tools and weapons were believed to be less resistant to change. Where tools and weapons crossed ceramic boundaries they were thought to be evidence of contact and diffusion (Trigger 1989: 171). Childe was not only interested in describing material traits but also internal structures, such as economy, social and political organisation and religious beliefs.

In Rwandan archaeology culture-history can be seen in the work of Hiernaux and Maquet (1957, 1960) Nenquin (1967a) and Van Noten (1983) who identified discrete archaeological cultures based on the association of similar ceramics, furnaces and distribution patterns. The culture-historical model was widely adopted in Great Lakes Africa because it allowed archaeologists to begin the long job of structuring and describing the past in a previously unexplored area of the world. Culture-history was also beneficial for "Nationalist Archaeologies" that bolstered national pride in the run up to, and during, independence from colonial rule (Trigger 1984: 360). However, in Europe in the late 1950s and 1960s culture-history received increasingly strong criticism because it failed to develop new explanations for culture change and continued to support evolutionary approaches that suggested change was the product of migration or diffusion. Thus culture-history continued to promote the belief that cultures were essentially passive, resistant, internally homogenous, and were only liable to change through external stimuli.

Processual Archaeology developed in the 1950s and 1960s in America and Europe in response to the narrow empiricism of culture-history. The development of New Archaeology and its interest in ecology, settlement patterns and cultural processes influenced the development of processual archaeology (e.g. Caldwell 1959; Binford 1962, 1965). In Britain processual archaeology was influenced by locational analysis and general systems theory (e.g. Clarke 1968). In contrast to normative culture-history, Processualism is founded on the belief that archaeology should ask questions about human societies, test hypothesis, and not simply describe culture history (Earl and Preucel 1987: 501). For processual archaeologists this was possible because human behaviour was believed to be essentially predictable in the way it adapts to external pressures. To archaeologists such as Clarke (1973) this reflected archaeology's "loss of innocence" as it developed into a mature discipline based on rigorous scientific testing. Unlike culture-history, New Archaeology suggested that cultures were not internally homogenous because they were at least differentiated by age and gender roles (Trigger 1989: 296). Instead of resorting to diffusion or migration as explanations of cultural change (e.g. Childe 1925, 1929), it emphasised cultural development from an internal point of view, allowing for the capacity of humans to invent new social structures and technologies by adapting to evolving social systems. In direct opposition to the historical particularism of culture-history, the results of processualism were the identification of interconnecting webs of cultural processes and the development of anthropological meta-theories based on large-scale cultural patterns (Earl and Preucel 1987: 504). However, despite its emphasis on internal processes, cultural change remained essentially the result of external stimuli, such as environmental pressures. Thus, processual archaeology, like culture history, lacked human agency, and cultures continue to be presented as essentially passive (Trigger 1989: 296-297).

Archaeologists working in Great Lakes Africa were slow to adopt processualism as elsewhere on the continent, there are no instances of processual archaeology in Rwanda and examples in the wider region are rare. Archaeologists in Great Lakes Africa were more concerned with filling geographical and chronological gaps, through the identification of past peoples, than grand theorizing, often believing African Archaeology to be theory-free. The growing body of linguistic data supported the continuation of culture-history by generating new groups of named people for archaeological distribution patterns to be attributed to. Thus, the culture remained the main archaeological analytical unit in Great Lakes Africa.

In the 1980s **Post-Processualism** developed in response to processualism's assumption of scientific objectivity and its failure to address human agency. Whilst it continued to value objectivity, post-processualism suggested that archaeology was inherently biased and that it must be explicit about this. For example, Shanks and Tilley (1987: 104) suggested that a fourfold hermeneutic existed, in which four stages of interpretative bias separate the archaeologist from the "alien" cultures of the past.

This hyper-relativist view described the complex and dynamic interplay between the analytical unit and the analyser. Whilst the extreme view of Shanks and Tilley has not been universally accepted, post-processualists generally agree that archaeologists, "work back and forth between theory and data, building, testing and tearing down models in order to construct improved ones that better fit what are perceived to be the 'facts'" (David and Kramer 2001: 57). An early proponent of post-processual thought was Ian Hodder who demonstrated that archaeological patterning could be the result of multiple factors and rejected the objective, scientific-testablility of archaeology (e.g. Hodder and Orton 1976). Hodder (1982) conducted some of the first ethno-archaeological work in Africa and demonstrated that material culture was actively manipulated and was meaningfully constituted as part of different social strategies and was capable of communicating multiple meanings. Post-processualism highlighted the importance of beliefs and values in the past shifting the focus away from generalizing theories back to historical particularism. Critics of post-processualism have highlighted its relativism, its failure to address large-scale archaeological patterns and its return to the particularism of culture-history (e.g. Khol 1993: 13-26). However, unlike culture history post-processualism moved beyond simplistic one to one relationships and has developed multi-vocality through the exploration of sub-sets within cultures such as gender enhancing our understanding of heterogeneity in the past (Emberling 1997: 295).

Archaeology in Great Lakes Africa has borrowed themes from post-processualism, such as gender archaeology (e.g. Kent 1998; Maclean 1998) and ethnoarchaeological research (e.g. Hodder 1982; Reid and Maclean 1995; MacEachern 2006). However, culture history remains the dominant theoretical approach. This is because there are still many geographical and chronological gaps that can benefit from the descriptive potential of culture history and because archaeologists working in Great Lakes Africa have been reluctant to apply alternate models. However, there is now a growing dissatisfaction with the normative culture-historical approach (e.g. Stewart 1993: 29; Ashley 2005). For example, ethnoarchaeology has demonstrated that the one to one association of ceramic patterns and peoples should not be assumed (e.g. Herbich 1987: 195-199) and archaeologists have begun to explore local-scale dynamics that have multi-factor explanations (e.g. Reid 1991, 1996; Robertshaw 1994, 1997; Ashley 2005; Posnansky et al. 2007; Lane et al. 2007). However, Rwandan archaeology is yet to benefit from these more textured approaches. Due to political instability and the resulting cessation of archaeological research at the beginning of the 1980s, post-processual approaches have yet to be applied. This is unfortunate because archaeology in Rwanda continues to be associated with outmoded racial thinking and ethno-racial models implicit in previous normative-culture historical approaches in Great Lakes Africa.

3.3 Archaeology and Racial Thinking in Great Lakes Africa and Rwanda

Racial thinking and archaeology have had a long relationship in Europe and Africa. In the late 19th century the evolutionary approach to the study of cultures promoted a strong relationship between prehistoric archaeology and ethnology (Trigger 1989: 110). In this unilinear model, cultures were arranged in evolutionary stages, from simplest to most complex (e.g. Spencer 1885), examples of which could be seen preserved in 'fossilised' contemporary ethnographic groups. The early evolutionary approach during the Enlightenment believed in the essential equality of all human cultures and their inherent potential. However, in the late 19th century a growing sense of nationalism led academics to treat cultural characteristics as almost unchangeable biological differences. For example, Spencer (1885) believed that whilst native peoples may strive towards cultural progress the process was likely to be so slow as to be imperceptible to the contemporary observer (Johnson 1999: 134). Thus, the 'simplest' cultures were doomed to racial inferiority.

This approach gained scientific support from Darwinian evolutionism (Trigger 1989: 113). Darwin's views were quite distinct from those of Spencer, for example Darwinian evolution in archaeology investigated the development of certain cultural phenomena not cultures as a whole as had been the case previously (O'Brien and Lyman 2006: 2). Nevertheless, Darwinian ideas were harnessed by others to support wholesale cultural evolution. For example, Lubbock (1865, 1870) explicitly incorporated Darwinian evolutionism into prehistoric archaeology and promoted a unilinear cultural evolution where 'extinct' less evolved races were doomed to be wiped out by the spread of civilisation.

Although culture-history rejected unilinear cultural evolution and eternal biologically defined cultural differences, it did not escape racial thinking completely. For example, culture-history continued to suggest that archaeological cultures reflected ethnicity (e.g. Kossina 1911) and to draw analogies between archaeological and ethnographic cultures. Childean culture-history associated archaeological remains with specific, or nameless, peoples that were given value based on their cultural or natural superiority (e.g. Childe 1925, 1929). Whilst "hard racial modelling" went out of fashion in Europe after the Nazi atrocities of the 2nd World

War, "soft racism" persisted (Hall 1996: 128). "Soft racism" in culture-history existed within the presumed relationship between archaeological cultures, ethnicity and mechanisms for culture-change. Explanations of culture change based on migration or diffusion suggested that change only occurred by contact with outside culturally superior stimuli, which retains implicit links with the epistemology of racism. Whilst these explanations of culture change were largely replaced in Europe in the 1950s and 60s by processual models the same cannot be said in Great Lakes Africa where culture-historicism has persisted until today. For example, from the early 20th century the "Hamitic Hypothesis" (discussed in Chapter 2 section 2.3) remained a dominant explanatory model in African archaeology, where race not only described biology but also culture, including political organisation and subsistence activities (MacGaffey 1966).

Although some archaeologists working in Great Lakes Africa explicitly rejected the "Hamitic Hypothesis" (e.g. Sutton 1986) others continued to support it. Within Rwanda the racial premise can most clearly be seen in the work of Jean Hiernaux, a medical doctor and anthropologist from Belgium, who worked closely with Emma Maquet to produce some of the first archaeological publications concerning Rwanda Burundi and the Congo (e.g. Hiernaux 1954, 1962, 1968; Hiernaux and Maquet 1957, 1960) (de Maret 1990: 128). Hiernaux (1956) was interested in the physical traits of modern peoples, he conducted anthropometric studies in Rwanda and used racial terms to distinguish between "Hamitic Tutsi", "Bantu Hutu" and "pygmoid Twa", characterising them based on their height and other body proportions. Hiernaux also attempted to assign blood group distribution using anthropology. However, he was to later soften his views:

> 'The Tutsi of Rwanda and of Burundi have dark skin, frizzy hair and small noses; they combine characteristics that for an old typological approach to anthropology would be considered both white and black. However, they have nothing to do with a mixture of whites and black. It is their biological history that makes them what they are….. it is a question of selection. Classificatory mania, which is peculiar to the human spirit and maybe especially so to European culture in recent centuries, for years obsessed anthropologists, who are only now beginning to extricate themselves from it.' (Hiernaux 1968 quoted in Chrétien 2003: 76).

Despite Hiernaux's shift away from describing Tutsi as "Caucasoid Hamitic" he continued to define them biologically in opposition to Hutu and Twa, and to uncritically associate these biological characteristics with archaeological finds (e.g. Hiernaux 1956, 1968, 1974). For example, where 'short' skeletons were found during archaeological excavations in association with roulette-decorated pottery, a ceramic he believed to be associated with agriculture, these were attributed to Hutu (e.g. Hiernaux and Maquet 1957, 1960; Hiernaux 1956). Even when archaeological skeletons were excavated without associated archaeological remains these were attributed to Tutsi, Hutu or Twa, based on height. Hiernaux also engaged in extensive discussions about the Renge, a pre-kingdom era people mentioned in the oral traditions of Rwanda believed to predate the kingdom of Rwanda, who Hiernaux compared to the Hutu because of their short, stocky stature and supposed relationship with agriculture (despite contradictions in the oral traditions that he recorded himself that suggested the Hutu and Renge are not related, Hiernaux 1974). Whilst archaeologists outside of Rwanda, such as Posnansky (1966), refuted Hiernaux's claims with direct archaeological evidence, Hiernaux's views have persisted within archaeological interpretations concerning Rwandan society and identity until very recently.

In 1967 Nenquin published the first synthesis of Rwandan and Burundian archaeology, *Contributions to the Study of the Prehistoric Cultures of Rwanda and Burundi.* Whilst Nenquin avoided attributing a specific ethnic identity to the producers of the Early Iron Age dimple-based ceramics he describes, he associates "B-Ware" ceramics, a roulette-decorated ceramic with the Renge (Nenquin 1967a: 272). Nenquin (1967a: 281, 276) also discusses the association of iron working remains with Renge and repeats the assertion that skulls found in the Musanze Caves (a group of volcanic caves in northern Rwanda, discussed in more detail in Chapters 4, 8 and 9) can be attributed to Hutu based on cranial measurements taken by Brabant (1963). Finally, Nenquin (1967a: 287) attributes "B-Ware" to probable "Hutu skeletal material" found at Ruli.

Racial thinking has permeated most Rwandan archaeologies. For Van Noten (1983) who published a synthesis of Rwandan Archaeology, *Histoire Archaeologique du Rwanda,* begins his book by explaining that the social constitution of Rwanda is made up of three racially and economically defined ethnicities:

> "Aujourd'hui nous constatons que la region interlacustrine est peuplée de trios ethnies. Des noirs Hutus, parlant une langue bantoe et pour cela appelés Bantous; ils représentent la grande majorité et vivent traditionnellement de l'agriculture. Un deuxième groupe, Tutsi, est d'origine ethiopide; ce sont des pasteurs. Le troisième groupe est constitué de Pygmées, appelés Twa au Rwanda; ils sont aujourd'hui potiers, mais étaient chasseurs à l'origine." (Van Noten 1983: 10)

Van Noten continues to use the Hamitic model to explain social organisation and identity in Great Lakes Africa but disassociates himself from direct analogies of particular ceramics with particular identity groups such as the Bantu or Tutsi:

> "Archéologiquement il n'y a pas moyen de parler d'une céramique bantoue ou tutsi; il faut en d'autres mots dissocier ces elements physiques, archéologiques, historiques et linguistiques." (Van Noten 1983: 63)

And despite earlier beliefs to the contrary, Van Noten concludes that the one to one association of archaeological ages with the appearance of social identities in Rwanda is untenable:

> "Nous avons nous-mêmes été tentés d'associer l'âge pierre recent aux Twa, l'âge du fer ancien aux Hutu et l'âge du fer recent à l'arrivée des Tutsi, mais il nous semble aujourd'hui que cette évocation est simpliste et improuvable." (Van Noten 1983: 63)

Although Van Noten rejected direct correlation, other archaeologists working in Rwanda and Great Lakes Africa have continued to promote them. For example, in Desmedt's (1991) regional ethno-linguistic model of roulette-decoration distribution she repeatedly refers to the pottery of the Renge and even titles one of her section headings *L'Age du fer recent au Rwanda: les Renge*. She also engages with an extensive discussion of the possible geographic origins of the Tutsi relating them to the arrival of pastoralism in Rwanda and her "W-Group" pottery in the 8th century AD (Desmedt 1991: 184). There are however, exceptions to these models, most notably in the work of Van Grunderbeek who has explored a range of Iron Age issues in Rwanda and Burundi, most prominently archaeometallurgy (e.g. Van Grunderbeek 1981, 1988, 1992; Van Gunderbeek et al. 1983, 2001; Van Grunderbeek and Roche 2005). Van Grunderbeek has avoided making ethno-racial assumptions about Rwandan society or archaeology and has questioned the association of archaeological pastoralism with Tutsi (Van Grunderbeek et al. 1983: 52 see also Van Grunderbeek 1981: 27) by identifying anomalies between the archaeological evidence and oral traditions, such as the appearance of archaeological pastoral remains in the Early Iron Age in southern Rwanda almost 1000 years before the supposed arrival of the Tutsi (Van Grunderbeek 1981: 27).

Whilst racial thinking has clearly influenced archaeological interpretations in 20th century Rwanda it is important to recognise that the influence of these archaeological models has not been confined to academic discourse. Racial thinking, which promoted definable, bounded entities and divided peoples, based on physical, cultural and economic differences, helped verify a racial view of ethnicity in 20th century Africa and contributed towards ethnic tensions. It is probable that if archaeological research in Rwanda had not ceased in the late 1970s and early 1980s, then the ethno-racial models that characterised early research would have been widely refuted by new research like they have in neighbouring countries. However, in the absence of any new research within Rwanda, Van Grunderbeek's important reviews remain the exception and not the rule. During archaeology's absence in Rwanda, and before its disappearance, archaeologists working in other Great Lakes Africa countries have turned to ethno-linguistic models to aid the investigation of Iron Age identities.

3.4 Archaeology and Linguistics in Great Lakes Africa

Many archaeologists working in Great Lakes Africa have looked to historical linguistics to help inform the archaeological record. However, the uncritical usage of these sources has led to the continuation of ethno-racial models associated with normative culture-history. For example, Hiernaux (1968) characterised the Bantu language group culturally (e.g. agriculturalists, iron workers and dimple-based potters). He also suggested that there was physical kinship amongst Bantu speakers from Cameroon to Tanzania and that any observed variations were adaptations to forest conditions or the result of mixing.

Historical linguistic studies in Great Lakes Africa initially focussed on the appearance of the Bantu language group at the beginning of the Early Iron Age and its subsequent branching into descendant groups in the Late Iron Age (e.g. Oliver 1966). Due to the meagreness of the archaeological record archaeology looked to historical linguistic studies as a means to identify and investigate social identity (e.g. Ambrose 1982; Desmedt 1991; Ehret 1998; Schoenbrun 1998). Although less fashionable today, ethno-linguistic models still arise (McMaster 2005). These models describe how by migration or diffusion different languages have spread across the region and associate these with the appearance and spread of certain archaeological materials such as ceramics (specific examples of which are discussed in Chapter 4.6). Thus, the uncritical use of linguistic models has seen the continuation of ethno-racial culture change models associated with culture-historicism. However, the relationship between archaeology and linguistics is not simple and should not be seen as a one to relationship. Despite this, both have tended to uncritically accept the models of the other and to over generalise (Nurse 1997: 379) and there is still dissatisfaction with how archaeology and linguistics interact (Eggert 2005).

Today linguistics have moved beyond migration models and their ethno-racial connotations (Vansina 2004: 173-175), and towards a firm sociological approach looking within societal groupings rather than merely investigating the chronological and spatial relationships between them (e.g. Schoenbrun 1998; Ehret 1998; Vansina 2004). There have also been limited efforts to incorporate these in Great Lakes Africa archaeologies (e.g. Reid and Schoenbrun 1994; Robertshaw 1999). However, examples are rare and archaeologists continue to return to simplistic linguistic models that have since been rejected by linguists themselves (e.g. Phillipson 2005). Nevertheless, historical linguistic studies still have much to offer archaeologists working in Great Lakes Africa and Rwanda. For example, Schoenbrun (1998: 78) has demonstrated that there is a sudden explosion of cattle terminologies in Great Lakes Africa c.900AD, suggesting a rapidly growing reliance on herding strategies for subsistence. Furthermore, he has used the linguistic evidence to suggest that these do not simply relate to the arrival of a new population because all the terms for horns, skin colour and pattern are Bantu in origin, a language already established in the region for over 1000 years. Thus, in contrast to Desmedt (1991), a critical approach to the data generated by historical linguistic studies can help deconstruct normative ethno-racial migration explanations of culture change, which has great potential in a Rwandan context. Therefore, this research will look to social historical linguistic studies such as Shoenbrun's (1998) work as a comparative resource and the historical-linguistic evidence for Great Lakes Africa and Rwanda will be discussed in detail in Chapter 4.

3.5 Ethnicity and Rwanda

Considering the recent historical and contemporary context of research in Rwanda (see Chapter 2 sections 2.3-4), and the relationship between archaeology and ethnicity, it is important to ask how archaeologists can approach the issue of ethnicity in Rwanda when it is such a loaded concept. The above discussions have highlighted how ethno-racial identity-based models have affected the interpretation of the pre-colonial past in Great Lakes Africa and Rwanda specifically. Furthermore, archaeological narratives continue to be associated with divisionism in Rwanda, and in the wider region culture-historical approaches have continued to focus on the identification of ethnicity in archaeology (e.g. de Maret 2005). This is problematic because it continues to support ethno-racial explanations in the region and in Rwanda and because it hinders the successful incorporation of archaeological narratives into education and other public spheres. However, this chapter has already discussed the complex evolution of the terms Hutu and Tutsi and the mixed society that they were a part of. Thus, it may be inappropriate to even attempt to identify Hutu, Tutsi or Twa archaeologies because it is almost impossible to distinguish between their material culture remains and to make a confident attribution. Therefore, the following section will discuss contemporary anthropological understandings of ethnicity and will argue that ethnicity, as it is understood today is not an accessible identity within the pre-colonial archaeology of Rwanda because that period contained a variety of socially ambiguous groups that cannot be separated based on material culture remains alone.

The word ethnicity is derived from the Greek word ethnos meaning nation or people. Banks (1996) has traced the earliest usage of the word in its current context to 1942 when Warner and Lunt used it to describe social and biological group status. The word appeared again as a socio-biological term in UNESCO's 1950 *The Race Question*, when a series of prominent scholars including Ashley Montagu, Claude Lévi-Strauss, Gunnar Myrdal and Julian Huxley suggested relinquishing the term 'race' entirely and replacing it with 'ethnicity' because people were misusing the term 'race' (Metraux 1950).

> "National, religious, geographic, linguistic and cultural groups do not necessarily coincide with racial groups; and the cultural traits of such groups have no demonstrated genetic connection with racial traits. Because serious errors of this kind are habitually committed when the term "race" is used in popular parlance, it would be better when speaking of human races to drop the term "race" altogether and speak of ethnic groups." (Metraux 1950: 142)

In contemporary anthropology ethnicity has been broadly defined as 'a self-perceived inclusion of those who hold in common a set of traditions not shared by others with who they are in contact.' (De Vos 2006: 4). Today, ethnic identity is understood to involve a shared sense of at least one of the following categories: racial uniqueness, territoriality, economic bases, religion, aesthetic cultural patterns and language and it can be used consciously or unconsciously as an advantageous marketable identity, to create a subjective sense of continuity in belonging, and to change the social status of a group or individual (De Vos 2006: 4–19). However, in practice ethnicity is defined variously depending on the context of research (Cohen 1974: ix).

Banks (1996) identified three main schools of thought concerning ethnicity that emerged in the late 1960s and early 1970s: the Manchester School's *Instrumental* ethnicity (for example see Cohen's 1969 work on the Hausa of Nigeria), Barth's

(1969) Norwegian School of *Situational* Ethnicity and Bromley's (1974) Soviet *Primordial* Ethos theory. The *Instrumental* approach suggested that social belonging and membership, or ethnicity, was a human response to circumstance, which tried to maximise individual and group advantage, often economic or political. In this way ethnicity is formed by internal organisation and is stimulated by external pressure. However, ethnicity was not simply created, or natural, and was built on a pre-existing form of cultural identity. For the Manchester School, ethnic identity was multifaceted and goal orientated (Banks 1996: 24-36).

The *Situational* approach developed out of the Norwegian school in publications such as Barth's (1969) seminal work on the Southern Pathan and ethnicity. Key to Barth's approach was a conscious, socially constructed ethnicity, subject to environmental constraints, and also that ethnic content in both culture and personnel, has no a-priori existence or stability. Barth also promoted the examination of ethnicity through the investigation of ethnic boundaries and their maintenance and not the internal make up of the group. Barth promoted a contextualised approach whereby ethnicity was controlled by situation but unlike *Instrumental* ethnicity, Barth implicitly promotes an emic study of ethnicity and suggests that ethnicity must be understood through the eyes of the actors on either side of an ethnic border. However, Barth has been criticised for giving too much stress to free will and choice (Asad 1972) by some who would prefer to stress political opportunism, power and dominance to individual choice. Thus, whilst Barth's work suggests, "social stratification and hierarchy are consensual processes in which all parties – even those who appear to lose out by such processes – collude", his critics suggests that some groups will exert greater pressure over politically inferior others for their own gain (Banks 1996: 16).

The *Primordial* approach (Banks 1996: 16-24) that characterised the Soviet School, promoted by Yulian Bromley (1974, 1975, 1980) and colleagues suggested that ties and bonds of consanguinity led to belonging and social identification and thus ethnicity. These ethnic ties are maintained through support, co-operation and cohesion. This approach suggested that although not eternal, ethnicity was extremely resilient and stable and persisted through all social formations. However, like *Instrumental* ethnicity, Bromley suggested the prevailing economic and political environment could affect ethnicity. The Soviet School sought to define the most typical intrinsic features at the stable core of ethnicity and were interested, albeit to a lesser degree than Barth (1969), in the maintenance of social boundaries but were not interested in ethnic origins, which Bromley felt were unimportant. However, whilst a more detailed examination of all three anthropological approaches to ethnicity must consider the prevailing political context of the time, Banks (1996: 23) makes particular reference to the contemporary context of Bromley's *Primordial* approach, which was developed under Stalin's Soviet Union when political independence was suppressed and ethnic stability was promoted across the union. Although this does not disprove the Soviet School's approach this potential bias should be recognised.

Banks (1996: 187) summarises his understanding of these ethnic studies by suggesting that there are three locations of ethnicity that implicitly relate to the three main schools of thought (Fig. 3.1).

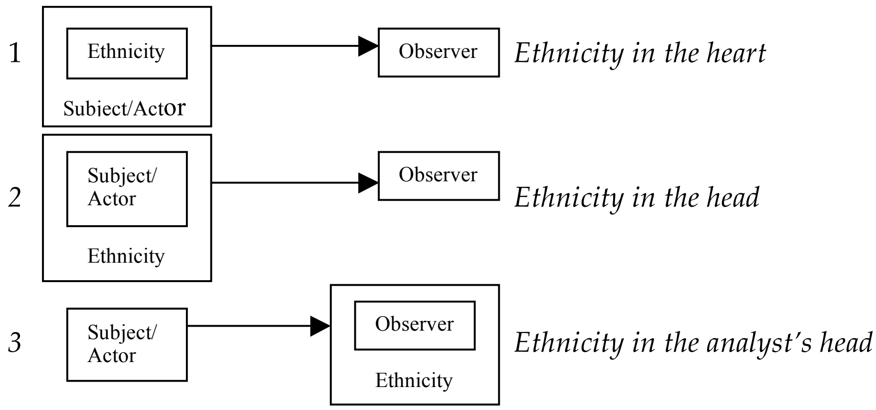

Fig. 3.1: Locations of Ethnicity (Banks 1996: 187)

Banks (1996: 187) suggests that: *Primordialism* locates ethnicity in the heart of the subject/actor through "territorial rootedness"; that *Situational* and *Instrumental* approaches locate ethnicity in the head of the subject/actor and the context of the subject/actors ethnic expression; whilst an abstract form of ethnicity might suggest that ethnicity is socially unconscious and resides solely in the head of the analyst. If primacy should be given to *Primordialism* then it is possible that ethnicity could be accessed archaeologically as it supports a list and trait, internal understanding, of ethnicity whilst also recognising the importance of borders. This is similar to Childean culture history (see section 3.2 this chapter) that defined cultures as bounded entities separated by varying cultural trait lists. However, *Primordialism* suggests an understanding of the ethnic past that is inherently static. *Situational* and *Instrumental* ethnicity have an implicit focus on the psycho-cultural element of ethnic identity and therefore perhaps represents the biggest challenge to archaeology because these thoughts and feelings of insider and outsiders are some of the most difficult sources to access in the archaeological record. Further, *Situational* ethnicity rejects the listing of internal cultural traits saying that they are useless because they are changeable both within and between ethnic groups. Finally, an abstract, or analytical, ethnicity questions the consciousness of ethnicity entirely. For example, as Eltringham (2004: 8) summarises, loyalty to and identification with the 'ethnic' Nuer (Evans-Pritchard 1940) or Dinka (Lienhardt 1961) in Africa was not realised by the subjects themselves who actually focused their allegiance around kinship and locality (Eriksen 1993: 88). However, today ethnicity is clearly not unconscious because the word and concept have become self-referential and are now in popular usage (Eltringham 2004: 10-11). For example, indigenous groups actively negotiate and promote their ethnicity as they compete for political power or cultural ownership of commodities such as land, including cultural sites (e.g. Great Zimbabwe, Fontein 2006).

Since these schools of thoughts were developed in the late 1960s, 1970s and 1980s the meaning of ethnicity has continued to be adapted and understood differently in various situations and current understandings now support a more psycho-cultural approach (De Vos and Romanucci-Ross 2006). Indeed ethnic surveys including work forms and government censuses do not ask you to qualify your ethnicity through a test but merely to state it as you see fit, giving the potential for each individual to choose from a range of possible ethnicities to suit their own opinion. This view, has been supported by earlier anthropologists such as Edmund Leach (1954), Michael Moerman (1965) and Fredrik Barth (1969), who suggested that, "there is no necessary correspondence between perceived social distinction and observable practices" (Eltringham 2004: 8), that "ethnic distinction has no imperative relationship with particular 'objective' criteria" (Ardner 1989: 111) and thus, "ethnic boundaries are between whoever people think they are between" (Fardon 1987: 176).

3.6 Ethno-archaeological Approaches to Ethnicity in Sub-Saharan Africa

The above discussion suggests that, with the exception of the *Primordial* approach, ethnicity as it is understood within anthropology is difficult to attain within archaeology without extremely rich archaeological resources and historical data, a combination that is rarely available in Great Lakes Africa. However, ethnicity continues to be used within archaeology as an inclusive term to represent various forms of group identity, despite the relationship between material culture and identity remaining unclear.

> "Is there any correlation between material culture patterning and identity? Does artefact variability provide a key for reconstructing past social boundaries? Asking these perennial questions feels sometimes like speaking of werewolves and vampires: a typical "do you believe in?" kind of issue, one that we might consider when relaxing with friends or colleagues, but tend to set aside the moment we come back to proper scientific work" (Gosselain 2000: 187)

The discussion earlier in this chapter (sections 3.6-7) demonstrates that some archaeologists working in Rwanda have believed that material patterning directly reflects a one to one relationship with past ethno-racial, or ethno-linguistic, groups (e.g. Desmedt 1991; Hiernaux and Maquet 1960). However, ethnoarchaeology has demonstrated that this normative understanding of material culture, ethnicity and identity cannot be sustained. For example, Michael Dietler and Ingrid Herbich studied the Luo potters of Nyanza, Western Kenya (Dietler and Herbich 1989, 1993, 1994, 1998; Herbich 1987; Herbich and Dietler 1989). The Luo are organised by kinship and lineage bonds in a patrilineal society where females are the potters, who when they are married and arrive in a new compound, are subject to a strict process of social assimilation when they learn the practices and customs of the new local family group (Dietler & Herbich 1989). This process creates not an ethnic style but local family micro-styles throughout the *chaîne opératoire* (Herbich 1987: 195-199). *Chaîne opératoire* literally refers to the operational chain or sequence, and includes the "range of processes by which naturally occurring raw materials are selected, shaped and transformed into useable cultural products" (Renfrew and Bahn 2005: 25). Through a *chaîne opératoire* approach to technology the processes of manufacture are reconstructed as best as possible, aiding the understanding of the social and symbolic context of technology and reflecting wider socio-political process (Renfrew and Bahn 2005: 26). Amongst the Luo, Dietler and Herbich identified many patterns and micro-styles that relate to immediate socio-cultural contexts and the implications of this study create problems for archaeologists seeking ethnicity through ceramic variation. Herbich (1987: 195-199) found that whilst micro-styles may be interpreted archaeologically as an ethno-linguistic or clan grouping in the contemporary Luo groups they actually reflected an internal community discourse and were not defined by ethnicity.

In contrast, Gosselain (1992, 1994, 1998, 2002; Gosselain et al. 1996) worked with one hundred different potters from twenty-one different ethnic groups in Cameroon who spoke seven different languages. He found that at each stage of the process there was possible variation and that this was culturally governed as choices continued to be made at stages where there was no perceived functional advantage. Gosselain's results suggest that variations in cultural patterning and style within the *chaîne opératoire* of the potters did match some socio-cultural boundaries especially linguistic boundaries and that the most salient stage was the forming/fashioning stage. Gosselain (1998: 71-77) suggests that each stage is differentially susceptible to change and transmission and that the most personal and most guarded stages, in this case forming/fashioning, will be the most informative regarding identity. Gosselain (2000: 198-199) contrasted this situation with the Great Lakes coil built pots where he suggested the unity of coil built pots in the region conformed with linguistic unity but that roulette decoration diffused as an idea and not as an ethno-linguistic or population migration, such as suggested by Desmedt (1991).

Whilst both of these case studies demonstrate that identity is imbued within and communicated by material culture, they also demonstrate that many different forms of identity may be communicated at single or multiple stages within the manufacture process. They also demonstrate that the messages contained within the objects are directly relevant to the producer but not necessarily the consumer (Dietler & Herbich 1989: 158). Furthermore, whilst Gosselain has identified forming as the most salient stage in the *chaîne opératoire* it is not clear that this will remain stable for all examples. Thus, whilst material culture patterning should be explored and is clearly meaningfully constituted it cannot be assumed to relate one to one with contemporary or ethnographic groups. The two case studies discussed above suggest that pots do not necessarily equal people (David and Kramer 2001; Sterner 1989).

Ethnicity has been demonstrated to be a complicated and often psycho-cultural phenomenon whilst material culture patterning cannot be assumed to have a one to one relation with group identity. Thus, whilst different forms of identity or experience may be explored in Rwanda such as those of metallurgists, potters, farmers and hunters, and geographically peripheral or central actors, ethnicities such as Hutu, Tutsi and Twa are not practically accessible (within Rwanda there continues to be a debate over whether or not these identities should be classed as ethnicities e.g. Freedman et al. 2006).

This section has highlighted how ethno-racial and simplistic ethno-linguistic modelling is inappropriate in Rwanda for this research because it is untenable within an archaeological approach and because it is inappropriate within a contemporary political context.

3.7 A Theoretical Framework

This chapter has reviewed a series of debates and issues, which have highlighted concerns that have been respected as this research identified appropriate research objectives and questions. Social historians have demonstrated the effectiveness of research that is empirically based, locally themed and broadly inclusive (e.g. Chrétien 2003; Vansina 2004; Newbury 2009) (see section 2.1 this chapter). The review of archaeological theory has described how the relationship between archaeology and ethno-racial thinking has contributed negatively to presentations of the past in Rwanda and has indirectly contributed towards political instability (e.g. Hiernaux 1956, 1968; Maquet 1961) (see sections 3.3-3 this chapter). Finally, this chapter has argued that the search for ethnicities, such as Hutu, Tutsi and Twa, in Rwandan archaeology cannot be achieved with any confidence (see sections 3.5-6 this chapter).

This chapter has highlighted the benefits and pitfalls of a culture-historical approach in Rwanda. Thus, whilst ethno-racial models associated with normative culture-history have been rejected, the descriptive and empirical benefits of culture-history have been harnessed during this research. Within this broad conclusion, these discussions have also identified more specific themes that this research has been guided by, many of which have been drawn from post-processualism and the social historical approach. These inter-related concerns include: self-awareness, pragmatism, localised scale of analysis, generation of empirical data, and the exploration of a multi-vocal past through holistic strategies that can identify and celebrate continuity alongside variation and can contribute positively towards a non-ethno-racial past:

Academic and political awareness are two primary concerns for this research. Whilst the research objectives and questions must be based on a sound academic platform they must also be sensitive to contemporary Rwanda and aware of how they may be received by a non-academic audience. Research cannot exist in a political or theoretical vacuum (see Chapter 1). Thus, having explored the contemporary and theoretical context of research in Chapters 2 and 3, this research reviews the extant archaeological evidence for the Iron Age in Chapter 4, before presenting a series of appropriate research questions that were identified.

Pragmatism was also key to the success of this research, because it was essential that the research objectives and questions respected the practical realities of the work. For example, this research had to be manageable within a PhD timeframe and financial resources. Moreover, the fieldwork needed to be practicable within contemporary Rwanda. Whilst rapid post-conflict development and vast infrastructural investment have taken place, Rwanda is one of the most densely populated countries in Africa with the majority of the population still living in rural areas without electricity and clean water, a situation that posed specific logistical constraints. Preservation of archaeological materials and deposits was also a concern, directing the research towards materials most likely to be encountered.

Localised scales of research were an analytical goal. Successive authorities and archaeological approaches have made sweeping generalisations about Rwanda's past (see Chapter 2 section 2.3). However, social historians have demonstrated that a complex and dynamic, multi-vocal past existed and can be accessed through more nuanced approaches (see section 3.2-3 this Chapter). Thus, in order to access a more textured past and to explore the variety of experience, this research identified research objectives and questions that were focused on localised and site based scales of analysis.

Social historians and educationalists working in Rwanda demonstrated a **multi-narrative past** to be both achievable and desirable (e.g. Freedman et al. 2006, 2009; Newbury 2009) (see Chapter 2 section 2.5 and section 3.1 this chapter). Thus, this research developed research questions that targeted various periods and localities in Rwanda's pre-colonial past. Furthermore, it also targeted a range of archaeological materials to maximise the research potential for encountering a variety of experiences and facets in pre-colonial Rwanda.

Empirical data formed the backbone of this research**.** The construction of history in 20^{th} century Rwanda has often been influenced more by ethnographic analogy and ethno-racial assumptions than empirical data (e.g. Hiernaux 1956; Maquet 1961). However, in order to foster confidence in the re-construction of Rwanda's pre-colonial past, new histories must be based on empirical data (Newbury 2009). Furthermore, empirical data is essential if the past is to be effectively negotiated by the public in Rwanda as part of the participant approach advocated by educationalists in Chapter 2 (section 2.5). The generation of empirical data was achieved through the application of methodologies and basic research questions associated with culture history, such as chronological questions, survey and test-excavation methods.

The exploration of **non-ethno-racial pasts** was a pre-requisite for research in contemporary Rwanda. In respect of the political context of this research (see Chapter 2), and supported by the discussions of ethnicity earlier in this chapter (section 3.6), this research rejected the ethno-racial models that characterised normative culture-history in Rwanda (e.g. Hiernaux and Maquet 1957, 1960; Nenquin 1967a; Van Noten 1983). Instead it sought to describe the historical particulars of the sites and materials identified and the complex dynamic identities that they potentially represent. Thus the search for external origins and influences was not a research concern here and the one-to-one association of material culture with actual or nameless peoples was not attempted.

A **holistic approach** to the identification of research questions and strategies helped maximise the potential for this research to access various meanings communicated through material culture patterning. Ethnoarchaeology has demonstrated that material culture is meaningfully constituted and that meaning may be communicated by one or more stages within the technological production process (e.g. Dietler and Herbitch 1989; David and Kramer 2001) (see section 3.6 this Chapter). Thus this research attempted to access meaning through a *chaîne opératoire* approach to the study of technological remains such as ceramics, enabling a maximised range of potentially meaningful material culture patterns to be explored and thus also analyse for site based and localised scales of material culture patterning. The holistic approach was also applied more generally, as stated above, in the development of an inclusive field and general analytical methodology.

The identification of material culture **continuity and variation** provided an over arching background to the research objectives and questions identified during this research. The colonial construction presented pre-colonial Rwanda as a divided, racially and economically opposed, society (Mamdani 2001; Eltringham 2004). This construction has been supported by normative culture-historical approaches that have sought to define the past into known cultural units, often on the basis of ceramic types alone (see section 3.3 this chapter). These constructions have defined the past by boundaries, both real and invented. In contrast the contemporary government, in an attempt to foster reconciliation, have presented a past that highlights historical unity, for example within clans and through the suggestion of egalitarianism (Freedman et al. 2006) (See Chapter 2 section 2.4). However, recent archaeological work has demonstrated that meaningful continuities exist alongside variations within the Iron Age (e.g. Ashley 2005). Instead of suggesting internal cultural homogeneity, this approach allows for a greater appreciation of the internal heterogeneity of society, promoted by social historians (e.g. Schoenbrun 1998; Newbury 2009), meaning that archaeologists can begin to appreciate the dynamic roles that pre-colonial Iron Age societies played in the active negotiation of their life-ways, both producing, and responding to change, instead of being presented as passive groups helpless before the environment.

Chapter 4

Reviewing the Evidence

Having explored the contemporary and theoretical reasons why an archaeological re-investigation of the Rwandan Iron Age is relevant today (see Chapters 2 & 3), this chapter will now discuss the extant evidence for the pre-colonial past in Great Lakes Africa and specifically Rwanda. The pre-colonial period dealt with during this thesis is the archaeological era currently referred to as the Iron Age, which spans approximately 500 BC to 1900 AD (e.g. Van Noten 1983; Clist 1987; Van Grunderbeek 1992). This era is of relevance to this research because it covers the period running up to European contact which has been most negatively influenced by 20th century presentations of the pre-colonial past (see Chapter 2 section 2.3). Whilst the preceding 'Stone Ages' are also important, because they further our understanding of human experience within the modern borders of Rwanda, they are simply beyond the scope of this PhD research.

This chapter will now review core archaeological Iron Age research themes including dating, ceramics, metallurgy, environment, site location, subsistence and socio-political organisation. Through which a series of pertinent and practical research questions, that follow the theoretical framework set out in Chapter 3, will be identified.

4.1 Terminology

In contested reconstructions of Rwandan prehistory (e.g. Hiernaux and Maquet 1957, 1960; Nenquin 1967a; Van Noten 1983) the past has been divided into a series of ages: Early Stone Age and Late Stone Age, followed by Early Iron Age and Late Iron Age. The origins of these technological ages are rooted in the "Three Age Scheme" (Trigger, 1989: 75) and reflect European influences over early research in the region. However, whilst European prehistory has been further sub-divided into overlapping non-technological periods, this has been slow to take place in Great Lakes Africa. Yet, despite the continuing usage of technological ages in sub-Saharan Africa there is growing dissatisfaction because they give undue primacy to technological developments at the expense of socio-political achievements (Sinclair et al. 1993: 8-9). Furthermore, they oversimplify the past by implying that it is static except for rare episodes of dramatic technological change. Although de Maret (1996: 265) has tried to overcome this problem by proposing transitional "stone to metal ages" his terminology is still focused on technological developments. However, simply replacing this system with non-technologically defined terms will not avoid the abrupt disjunction that these types of chronological frameworks imply. Inevitably all chronological frameworks are imperfect because they explicitly seek to simplify the past into artificial units.

The reliance on technology as a defining factor in prehistory has negatively influenced archaeological interpretations in Rwanda. For example, Nenquin (1967a: 15-254) identified a large number of sites with Early and Late Stone Age materials, which he universally referred to as mixed deposits, i.e. produced by post-depositional mixing as opposed to layers in which different cultures were contributing at the same time. In this example Nenquin (1967a) has allowed his interpretation to be constrained by the established chronological framework instead of using his data to develop a more complex and representative framework.

However, a discussion of the history of archaeology in the region, such as presented in this chapter, necessitates the use of the Early Iron Age/ Late Iron Age dichotomy that has structured previous debates. Nevertheless, the inadequacies of this technological and overly simple system are recognised, and thus this thesis will aim to use the results of this research where appropriate to develop the current framework so it more appropriately reflects the complexity of prehistory in Rwanda and Great Lakes Africa.

4.2 Dating

Whilst the Iron Age is clearly a term linked to the appearance and persistence of iron technology throughout the region, the identification of the Iron Age archaeologically is more frequently associated with the identification of Iron Age ceramics. This is because iron production waste is not always found at sites dating to the Iron Age and where it is recovered it is rarely chronologically diagnostic (for an exception to this see the decorated Early Iron Age furnace bricks from southern Rwanda, Raymakers and Van Noten 1986). Furthermore, ceramics are the most common archaeological material found at Iron Age sites in Great Lakes Africa and they are more chronologically diagnostic. (However, despite Ashley's 2005 significant contribution to ceramic studies in Great Lakes Africa, ceramic chronologies remain poorly understood in Rwanda.) Therefore discussions of Iron Age dating are inextricably tied to the appearance of Urewe and roulette-decorated ceramics, marking the beginning of the Early and Late Iron Ages respectively.

Leakey et al. (1948) first formally identified Urewe at Siaya, Kenya (although they called it "dimple-based ware") and immediately recognised its stratigraphic association with iron and thus an Iron Age. Whilst no absolute dating was available, Urewe was believed to antedate modern times by a considerable period because a separate pottery type, roulette-decorated ceramics, was found in between. The first absolute date associated with Urewe came from Nsongezi rock-shelter in Uganda (Pearce and Posnansky 1963), which dated a Late Stone Age hearth immediately underlying an Urewe deposit to AD 1025 +/- 150 (M-113) (Crane and Griffin 1962). This gave a *terminus post-quem* for Urewe that meant the remainder of the Iron Age had to be squeezed into the next 1000 years. However, this date from Nsongezi was quickly contradicted by further research and is now believed to be erroneous (Van Grunderbeek 1992: 53). Soper (1969: 149) published the first dates for Urewe material from Siaya and these clustered around the early 1st millennium AD. Almost 1000 years earlier than the Nsongezi date. Subsequently Hiernaux (1968) produced the first dates for Urewe in Rwanda and these again fell in the first centuries AD (AD 300 +/- 80 for Cyamakuza (B-758) and AD 250 +/- 100 for Ndora (B-755)). Following these initial results a flurry of dates were produced from sites in Kenya, such as at Urewe by Soper (1971) and at Gogo Falls by Collett and Robertshaw (1980) amongst many others.

De Maret et al. (1977) attempted the first synthesis of radiocarbon dates from Rwanda in their regional compilation of material from west central Africa. Whilst an early 3rd century BC date (GrN 5752) existed from an empty pit at Rurembo this was excluded because it did not have a clear relationship with any archaeological remains. Thus de Maret et al. (1977: 496) concluded, based on the available cluster of dates that the Early Iron Age was well established in central and southern Rwanda by the 3rd century AD. For the start of the Late Iron Age de Maret et al. (1977) considered two 9th and 12th century dates from Akameru, a cave in northern Rwanda (GrN 7671, GrN 7672) (later reported by Van Noten 1983) and supported these dates with a 13th century AD date from the nearby Matupi cave, DRC (GrN 7244). All of these Late Iron Age dates were in association with roulette-decorated ceramics. However, unlike later analysts (e.g. Van Noten 1983; Van Grunderbeek 1992), de Maret et al. (1977: 490) did not use the earliest of these dates to posit an appearance of roulette-decorated pottery in 9th century AD Rwanda but pointed out that the later date from Akameru had actually been generated from samples stratigraphically beneath the early date. They suggested that this anomaly was the result of the relatively small size of the samples and the high standard deviation that these produced. Thus they placed the start of the Late Iron Age in Rwanda at the beginning of the 2nd millennium AD (de Maret et al. 1977: 490).

Clist (1987) and Van Grunderbeek (1992) have produced more recent syntheses of Early Iron Age radiocarbon results. Clist (1987) attempted a "*Critical Reappraisal of the Chronological Framework of the Early Urewe Iron Age Industry*" and Van Grunderbeek (1992) has investigated the chronological limits of the Early Iron Age in Great Lakes Africa with specific focus on Rwanda and Burundi. The two approaches represent a methodological clash because Van Grunderbeek is explicitly inclusive whilst Clist works within a critical framework. Clist scores dates based on their reliability and questions those that have a low rate of confidence based on their context or high standard deviation. However, Van Grunderbeek uncritically accepts the vast majority of available dates and is inconsistent with her use of these dates. For example, whilst Van Grunderbeek published the 1 and 2 sigma ranges for each date she switches between the higher or lower margin of these dates uncritically to best fit her own explanations (MacLean 1996a: 45). Furthermore, she uncritically accepts dates that are extremely isolated from the established time frames without sufficiently exploring the potential for contamination. For example, through their archaeometallurgical work Van Grunderbeek et al. (1983) produced radiocarbon dates that they believed pushed the Early Iron Age in Rwanda and Burundi back into the first and second millennium BC. Whilst some of these very early dates such as one from Muguza (1665±205 BC) have now been rejected on the grounds of old wood or other forms of contamination (Van Grunderbeek et al 2001: 82), Van Grunderbeek et al. continue to support their early dates from Rwiyange I (1230±145 BC and 905±285 BC) and Mubuga V (1210±145 BC) (Van Grunderbeek et al. 2001: 276). However, these very early dates have been met with much scepticism, not least because the palaeoecological evidence suggests that there was a lot of volcanic activity was taking place around 1000BC increasing the chance of natural charcoal during that period persisting into later times (Taylor et al. 1999: 313). Furthermore, 1st millennium BC fluctuations in atmospheric radiocarbon around 800-300BC caused by volcanic activity obstruct precise radiocarbon dating during this period (Killick 2009: 46).

Van Grunderbeek is equally contentious with her dates for the end of the Early Iron Age in Rwanda. She suggests that Urewe-using communities are present up until the

15th century AD based on an isolated single date from Mirima II (AD 1380±110) that has been calibrated to AD 1400, despite the next nearest dates from Rwanda being calibrated to AD 770±190 and AD 570±170 (Van Grunderbeek 1992: 58-59). Grunderbeek's very early and very late dates are clearly unreliable and thus the results of Clist's (1987) critical review are preferred here. This synthesis dates the Early Iron Age regionally from 500 BC to 1000 AD, the later date based on results from western Tanzania (e.g. Schmidt 1978: 291). However, in Rwanda and much of the northern shores of Lake Victoria there is no presence of Urewe past the 8th century AD.

The beginning of the Late Iron Age is signalled by the appearance of roulette-decorated ceramics, which continue to be produced today. Some scholars suggest that Urewe was rapidly replaced by roulette-decorated ceramics at the end of the 1st millennium AD (Phillipson 1993: 225). However, with the exception of two isolated, and thus questioned, Rwandan radiocarbon dates from the 7th and 9th centuries AD (Van Grunderbeek 1992; Van Noten 1983) the earliest dates for roulette-decorated ceramics fall at the beginning of the 2nd millennium AD (e.g. from Ntusi 11th century Reid 1994/5). Therefore, at present, within the current ceramic framework, there is an archaeological hiatus between the end of the Early Iron Age and the start of the Late Iron Age. Wotzka (2006: 271-289) suggests that this relates to depopulation of the region at the end of the 1st millennium AD. However, in contrast Ashley (2005: 43) suggests that this 200-300 year gap is not the result of depopulation but represents a lack of research focus on this period. This research lacuna is understandable considering that until recently archaeologists were more concerned with the origins of the Early and Late Iron Ages and not a transitory phase between them. Furthermore, this short phase is likely to be less well represented in the archaeological record, and therefore more difficult to identify, when compared to the much longer Early and Late Iron Ages. Whilst research has attempted to address this phase through the identification of post-Urewe ceramics in Uganda (e.g. Posnansky 1967; et al. 2005; Ashley 2005) there has been no work on this period in Rwanda.

This summary has highlighted two main dating issues:

1. When did the Early Iron Age begin?

Question one has already received a lot of attention within Great Lakes Africa at the expense of developing our understanding the Early Iron Age itself. This issue is also impractical for this research. For example, early deposits are generally encountered incidentally and not by design. Furthermore, due to dating concerns already discussed for the 1st millennium BC, many more well stratified sites are needed to develop this debate, which will necessarily be the result of many more archaeological projects. Thus, where early dates are encountered during this research they will be contextualised within this debate but are not a focus of this thesis.

2. Was there a transitory phase in the late 1st millennium AD?

Question two is receiving growing attention in Great Lakes Africa archaeological studies but is yet to be explored in Rwanda. This topic represents an excellent opportunity through which to examine continuity and variation in Iron Age Rwanda in conformity with the theoretical framework established in Chapter 3. Therefore, where deposits and assemblages dating to this period are identified during this research these will be targeted and examined in detail.

4.3 Technology

Archaeologically identifiable technologies in the Iron Age include metallurgy, pottery and lithics. However, stone tools in Iron Age contexts are rare in Rwanda and where they do occur, as at Masangano, they have been attributed to post-depositional mixing and have been largely ignored (e.g. Van Noten 1983). Thus, lithics will not be dealt with here.

4.4 Early Iron Age Ceramic Studies

Urewe ceramics have been classified under different names in Great Lakes Africa. Leakey et al (1948) were the first to name them, calling them "dimple-based ware" on account of the distinctive basal cavity observed in many examples in their assemblage (Fig. 4.1). However, this term attracted criticism because it incorrectly suggested that dimple bases were the only diagnostic feature and were present on every vessel, when they actually only form a relatively small part of any assemblage (Soper 1969: 148; 1971: 6; Posnansky 1967: 644; 1973: 578). As an alternative Posnansky, supported by Soper (albeit tentatively), and following the trend of the times, suggested the use of the type-site name Urewe (a Siaya site excavated by Leakey et al. 1948) (see Shinnie 1978: 58). Subsequently, despite initial reservations, Anglophone archaeologists quickly adopted the term Urewe.

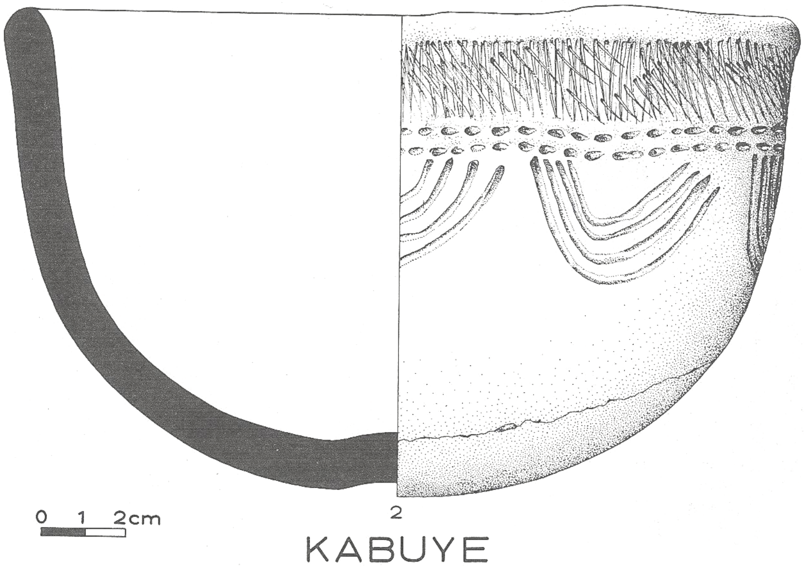

Fig. 4.1 Illustration showing a Classic Urewe hemispherical bowl with a dimple-base from Kabuye, Rwanda (reproduced from Van Noten 1983: Plate 11)

In Rwanda, although Early Iron Age ceramics were encountered as early as the 1930s (e.g. Boutakoff 1937) they were not formally identified until much later by Hiernaux and Maquet (1957, 1960: 31) who named them "type A", although a close similarity with Leakey et al.'s (1948) dimple-based ware was noted. Despite a continuing preference for "A-Ware", alongside "dimple-based ware" and "Urewe ceramics", in discussions of Rwandan archaeology (e.g. Nenquin 1967a; Van Grunderbeek et al. 1983; Van Noten 1983; Misago pers comm. 2009) only the term Urewe will be used throughout this research. Although type-site names have their own pitfalls, such as the association with a particular location and not an actual distribution, the use of Urewe is preferred here because it identifies this ceramic as a Great Lakes Africa phenomenon through the use of a unique and relevant place name. Furthermore, it is also the most commonly used term today outside of Rwanda, allowing the results of this research to be more directly contextualised within region wide debates.

Urewe is the only ceramic associated with the Early Iron Age in Rwanda and is present over much of Great Lakes Africa during this period. Subsequently, Urewe has become the chief indicator of the Early Iron Age in this region. However, beyond its use as a dating tool it has been little explored and its socio-economic role as a craft specialisation has been largely ignored (although see Maclean 1996b and Ashley 2005 for suggestions).

The main Urewe research themes can be summarised by seven related questions:

1. **How can Urewe be defined?**

Question one refers to the physical definition of Urewe. Since Urewe was first formally identified analysts have differed on the range of decoration and forms, amongst other variables, that best define Urewe. Whilst this research is unlikely to encounter sufficient material to contribute significantly to this debate it is important to describe the salient Urewe features so that any assemblages identified during this research can be compared and contrasted with the established typology.

Defining Urewe: "Classic Urewe" ceramics have three main diagnostic features: dimple bases, bevelled rims and decorative motifs that include channelling, scroll and circle patterns, triangles, cross hatching and punctured dots (Fig 4.2) (Leakey et al. 1948: 22; Posnansky 1961a: 183). (The term "Classic Urewe" was first used by Posnansky (1973) to distinguish between the most common form of Urewe and potential variants, and it will be used similarly here.) Classic Urewe is clearly a quality product, demonstrating a high degree of expertise in the application of these features with as many as eight bevels on some vessels and others showing burnishing and slipping. In Kenya, Leakey et al. (1948: 23) identified five Urewe vessel forms: wide mouthed bowls, narrow mouthed bowls, bowls with flared rims, globular pots with flared rims and beakers. This can be contrasted with Posnansky's (1968: 2) simplified range that included globular cooking-pots, shallow open dishes and long vases. Whilst Posansky's definition is interesting because it attributes a function, cooking, to some of the vessels, it is too narrow in scope and reduces the form range to three vague categories. Van Grunderbeek (1988: 47-49) employed a less ambiguous classification range for Urewe from Rwanda and Burundi, which was later adopted by Ashley (2005), and included closed mouth bowls (e.g. Fig. 4.2: 3), hemispherical bowls (e.g. Fig. 4.1), open bowls (e.g. Fig. 4.3, 1,2 and 4) and globular jars with everted necks (Fig. 4.2: 1) with an expected 60:40 ratio of jars to bowls from Rwanda and Burundi. Other work in Rwanda has identified carinated shoulder vessels from Nyirankuba (Hiernaux and Maquet 1960: 47) and collared jars (Nenquin 1967a) (Fig. 4.4), believed to be the same as Van Grunderbeek's (1988) necked jars. The present research, following Ashley (2005), will adopt Van Grunderbeek's (1988) classification range because it has been designed with specific reference to Rwanda and Burundi and will allow the results of this research to be compared and contrasted with Ashley's extensive regional study. However, where forms are identified that cannot be attributed to one of these groups the range will be adapted and enhanced to include them.

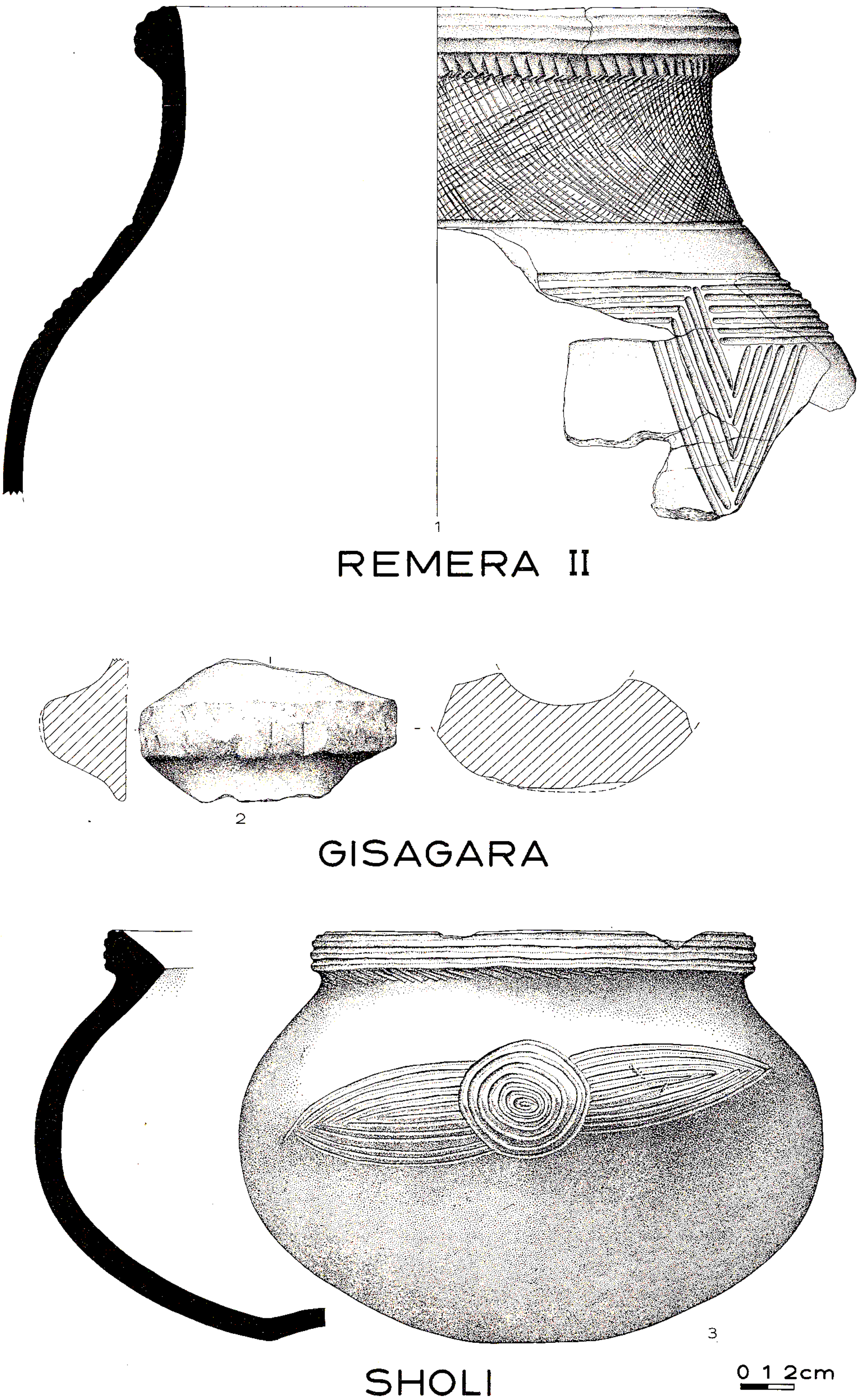

Fig. 4.2 Illustration showing Classic Urewe ceramics from Rwanda, including bevelled rims, (1 and 3), incised cross-hatching (1), channelling and triangular motifs (1), and circular motifs and dimple base (3) (reproduced from Van Noten 1983: Plate 35)

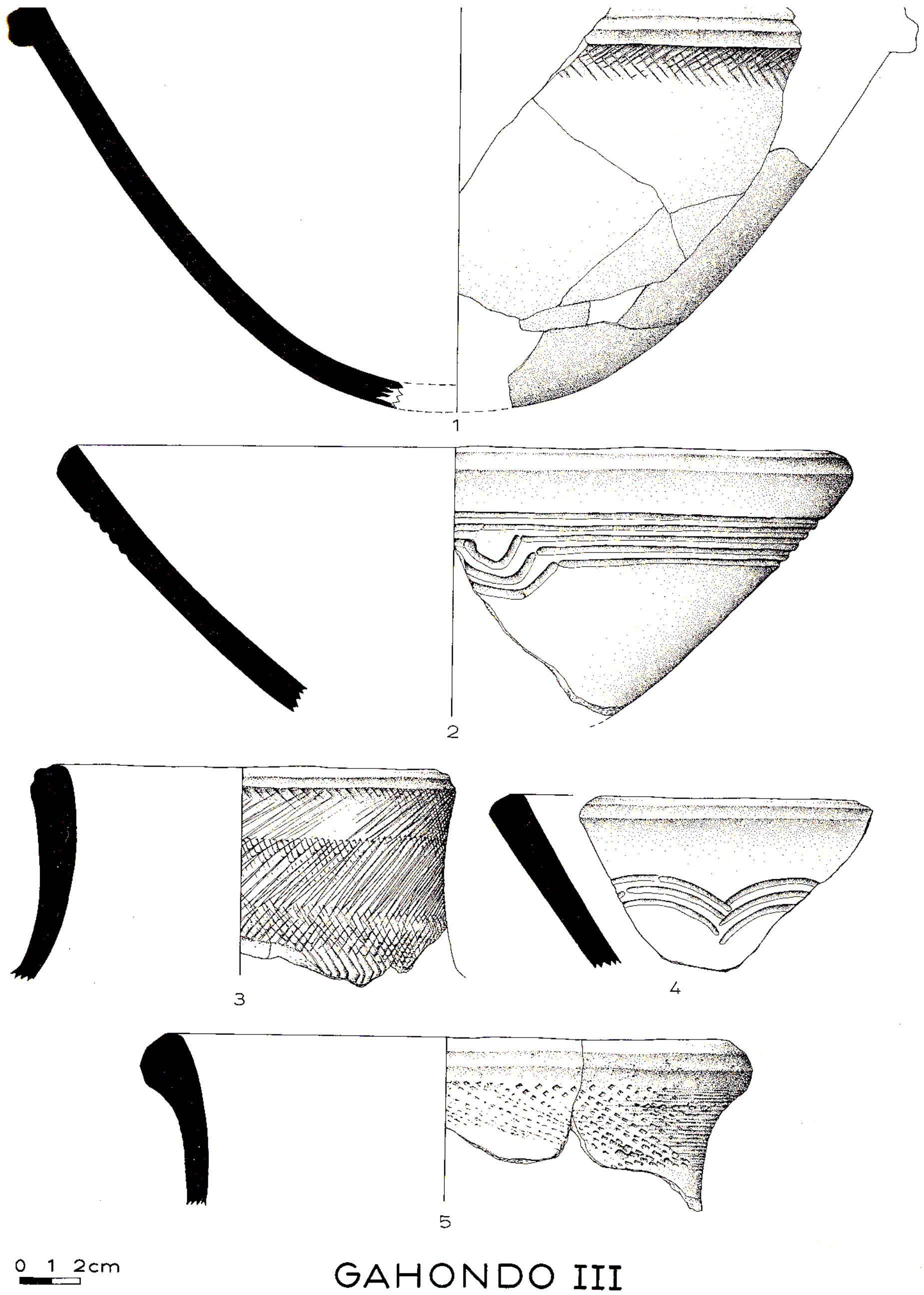

Fig. 4.3 Illustration showing Classic Urewe vessels from Gahondo III, Rwanda, including open bowls (1, 2 and 4), straight-necked jar (3) and everted-necked jar (5) (reproduced from Van Noten 1983: Plate 29)

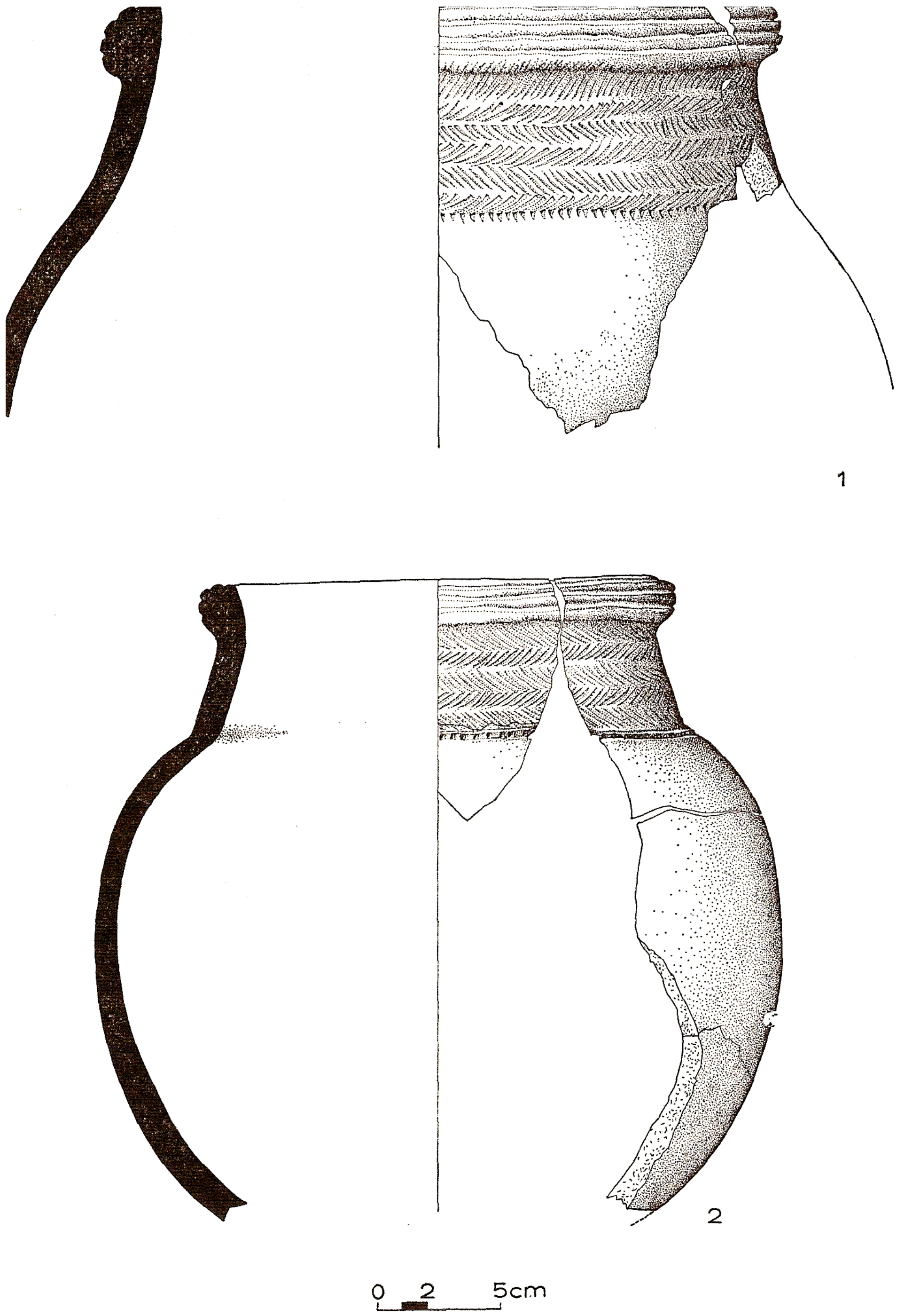

Fig. 4.4 Illustration showing Classic Urewe vessels from Ruhimangyargya, Rwanda, including a globular jar (1) and a carinated/collared jar (2) (reproduced from Nenquin 1967a: 261 Fig 152)

2. **When did Urewe first appear in the region?**

Question two is a dating issue that has already been described above in relation to the beginning of the Early Iron Age and will not be discussed further here.

3. **Was Urewe locally developed within the region or was it derived from outside?**

Question three is concerned with the origin of the Urewe ceramic tradition. Although this debate has received a lot of early attention it has received relatively little consensus. This question is beyond the scope of this research because currently there are too many geographical gaps in the archaeological record. Furthermore, it contradicts the theoretical framework set out in Chapter 3 that seeks to explore non-ethnically defined pasts. Therefore, whilst the origins and identity debate will be outlined here because it is a central theme in Early Iron Age ceramic studies, it will not be directly tackled during this research.

Urewe Origins and Identity: In Great Lakes Africa ceramic technology first appeared in the Late Stone Age. However, Late Stone Age ceramics have not been identified in Rwanda although they exist close by at Kansyore Island in southwest Uganda (Chapman 1967). Whilst Kansyore Ware is important because it demonstrates the adoption and development of a new technology during the Late Stone Age, it is often believed to be of limited relevance to Iron Age studies because it doesn't appear to have any continuity with the later wares (Robertshaw 1991b). (Although recent work by Lane et al. 2007 on the eastern shores of Lake Victoria in Kenya has shown there to be significant continuities between Kansyore and Urewe using populations in a single archaeological sequence). Thus, in the absence of an indigenous pre-cursor to Urewe, archaeological research has explored whether Urewe was independently invented in Great Lakes Africa or originated from elsewhere.

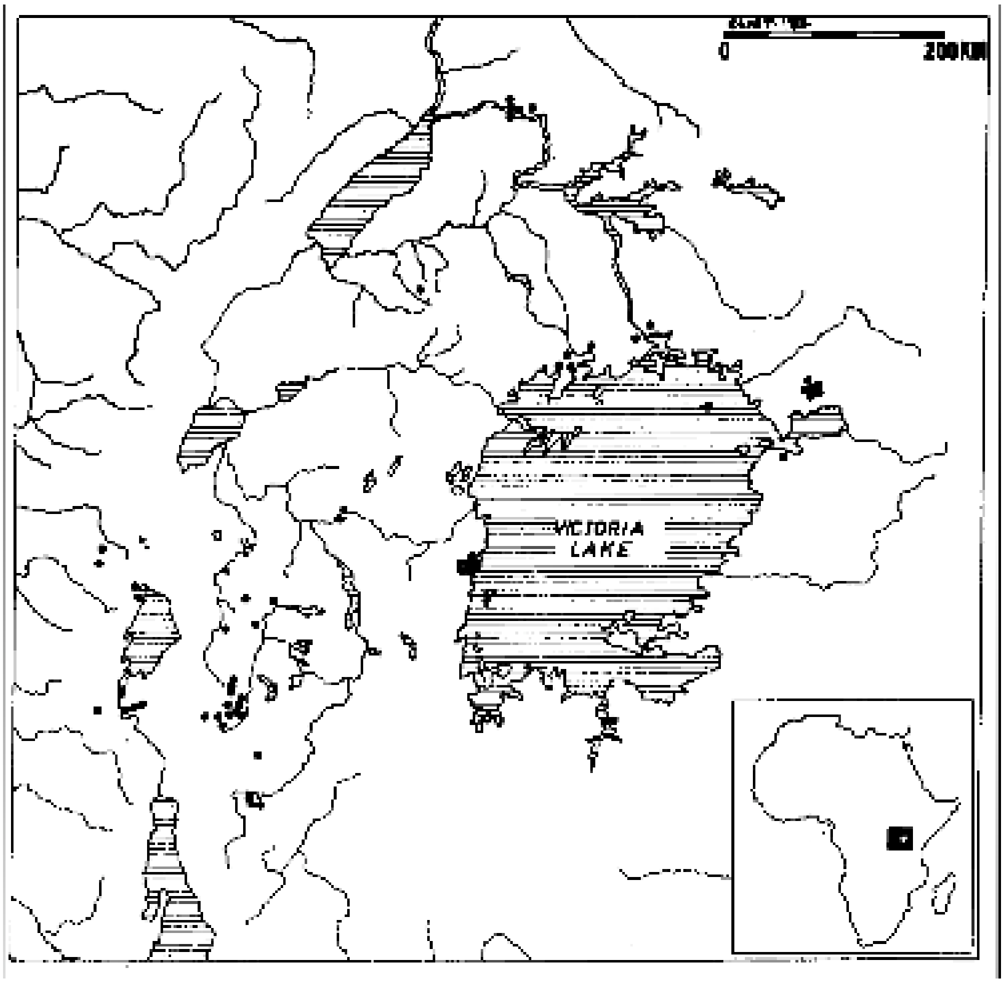

Fig. 4.5 Map showing spatial extension of Urewe site (sites shown as black dots) (reproduced from Clist 1987: 39)

The distribution of Urewe stretches from Western Kenya and the eastern shores of Lake Victoria (Leakey et al 1948; Lane et al. 2007) to the western shores of Lake Kivu in the Democratic Republic of Congo (DRC) (Hiernaux and Maquet 1957). It is also found in north Ugandan sites such as at Murchison's Falls (Soper 1971) and as far south as the southern shores of Lake Victoria in Northern Tanzania (Soper and Golden 1969) (Fig. 4.5). Thus, Urewe is a regional phenomenon, however, its origins are not clear. Van Noten (1979) suggested that it was locally developed in Great Lakes Africa and remained confined to that region. However, others have hypothesised that Urewe is a product of a "Bantu Package" that migrated across Africa, carried along as part of an advantageous linguistic, economic, technological and social model (e.g. Oliver 1966) and thus has wider relations. Although the "Bantu package" has since been shown by linguistic studies to be flawed because agriculture, iron-working, cattle-keeping and Bantu languages have different time depths in Great Lakes Africa (e.g. Schoenbrun 1998) this suggestion was prevalent until recently. For example, Phillipson (1977) associated Urewe with the Chifumbazi complex; Posnansky (1961d), Fagan and Lofgren (1966) and Soper (1973: 193) compared Urewe with "channelled wares", from eastern DRC commonly linked to Zambian wares; and Van Grunderbeek (1988) has suggested connections with ceramics found as far west as Cameroon and Nigeria and as far east as Sudan and Ethiopia. However, there is little consensus on any of these routes. For example, Soper (1971: 30-32) stated that there was no resemblance to pre-Aksumite northern Ethiopia but saw connections with Sudan at Jebel Moya and thus believed the southern Sudanese belt to be the most likely origin. Soper (1971: 33) also concluded that before any origin could usefully be identified more work was needed in "Congo, Angola, central Tanzania, Mozambique and the southern Sudan belt north of the equatorial rainforest". It is notable that since that time much of these areas have seen violent conflict and little work has been possible.

4. **Is Urewe a Great Lakes Africa ceramic manifestation or does it form part of a larger phenomenon?**

Question four, whilst related to question 3, concerns more general Urewe relationships that may exist in the wider region. This topic will not form a main research objective here because this is a targeted study focusing on Rwanda, a relatively small geographic area. However, the history of the debate will be outlined so that any relevant results generated can be contextualised within it.

Other Urewe Relations: Many different types of Early Iron Age ceramics have been identified across eastern, southern and central Africa and since the 1960s a debate has continued as to whether these should be considered related or separate phenomena. For example, in his early review Philipson (1977) identified twelve in eastern and southern Africa alone. Soper (1969, 1971, 1973) devoted a lot of time to this topic and suggested that Kwale ware from south eastern Kenya, dimple-based ware from Siaya north-west Kenya and "Sandaweland-Typus" from central Tanzania were all elements of a "single closely related complex" (Soper 1973: 193). This complex was based on shared incised decoration but failed to recognise the highly variable motifs and to appreciate the significance of variation in vessel shape, rim form and base. These, Soper (1973: 195-196) explains, are insignificant differences created by distance and differing environments. Whilst Soper (1973: 198) accepted that there was not enough data to fully establish the nature of these relationships he was convinced they were related. Soper also postulated links between Urewe and ceramic traditions in Southern Africa and suggested that Early Iron Age wares were spread via Kalambo to Gokomere. Soper (1971: 29) saw this as a pulsating wave or front, pumping out continuous waves of variation creating a

"Southern African Iron Age Complex". Today the debate continues with Huffman (1989: 156; 2007) suggesting that Urewe is the ancestor of the entire eastern stream of Phillipson's (1977) "two stream" hypothesis that explained the migration of the eastern Bantu language group, which arrived in southern Africa around the beginning of the 2nd millennium AD (Fig. 4.6).

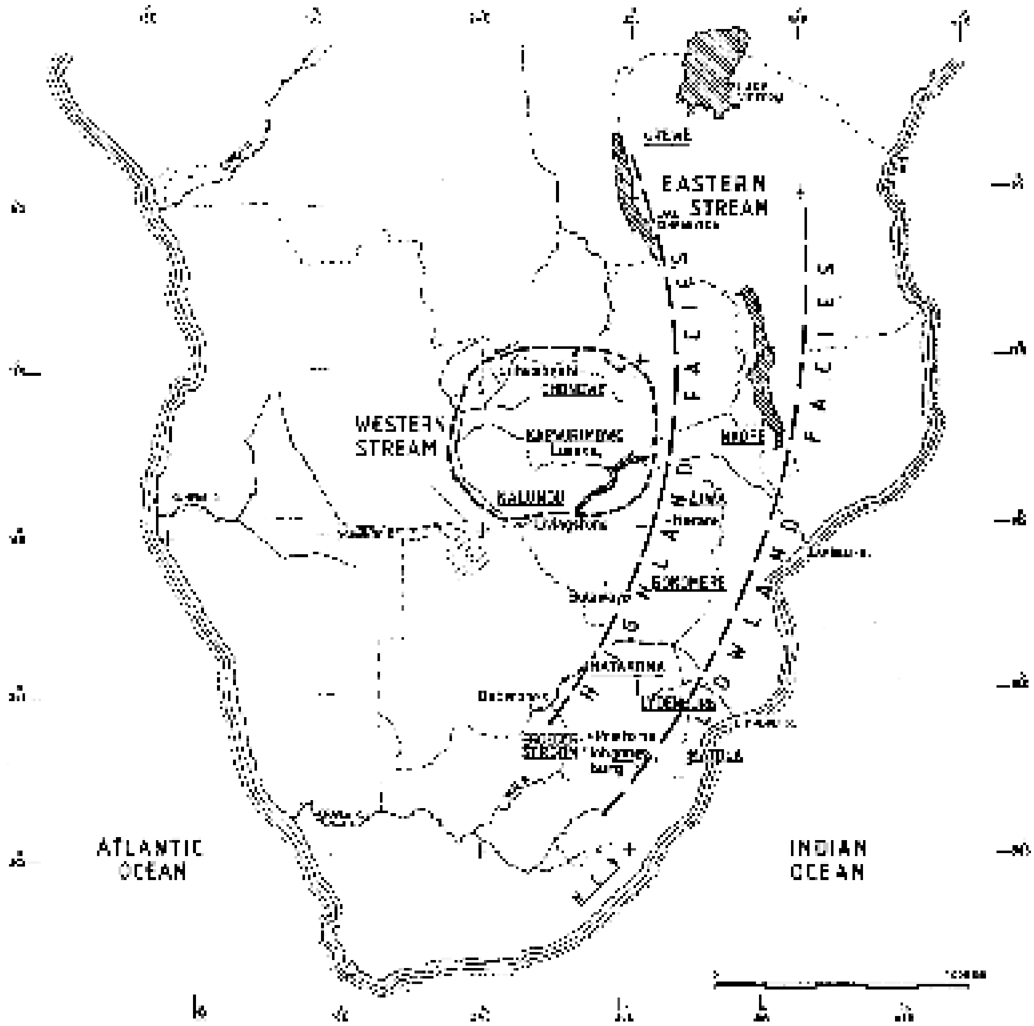

Fig. 4.6. Map showing Phillipson's (1977) Early Iron Age migrations (reproduced from Huffman 1989: 161, Fig 2)

In Rwanda there has been little consideration of the relationship between Early Iron Age ceramics and those immediately outside of Great Lakes Africa. Whilst regional similarities may exist within Early Iron Age wares it is believed that the Rwandan and Great Lakes African archaeological record is still too incomplete to allow confident ceramic connections to be postulated without demonstrable geographic, and preferably stratigraphic, relationships. Furthermore, this is also problematic ground where archaeology often goes array, searching for origins and outside relations at the expense of developing our understanding of internal dynamics.

5. **Is Urewe a homogenous ceramic type or can meaningful variation be identified within it?**

Question five concerns the detailed definition of Urewe and the potential for spatial and temporal variation within this ceramic type that was once assumed to be a homogenous ceramic phenomenon. This question is consistent with the theoretical framework set out in Chapter 3 that seeks to investigate and celebrate variation alongside continuity. Thus, this debate will be discussed in detail below and will become a major focus of this research.

Urewe: Homogeneity versus Variation

> "Au Rwanda et au Burundi, la civilisation de l'Age du Fer Ancien a laissé comme témoin une céramique caractéristique présentant une uniformité à peine rompue par des variants d'exécutions locales. Déjà dans les formes se reflète l'homogénéité de la culture Urewe." (Van Grunderbeek et al. 1983: 25)

Today the regional unity of Urewe is widely accepted. However, the supposed "homogénéité" of Urewe has been seriously questioned and the possibility that meaningful variation exists within Urewe continues to be explored (e.g. Ashley 2005). Leakey et al. (1948) were amongst the first to identify regional similarities between Great Lakes Africa "dimple-based" Early Iron Age wares when they suggested parallels between their Kenyan material and pots from Nsongezi rock-shelter in Uganda, and this regional relationship was quickly realised by archaeologists working in Kenya, Tanzania and Uganda (e.g. Soper 1971). Having established the regional unity of Urewe, work has since focused on the potential for meaningful variation within Urewe. Although some have speculated about the possibility of chronological Urewe variation (e.g. Posnansky 1967: 632 and Soper 1971: 14), this debate has largely been dominated by arguments for and against geographical variation. For example, Van Noten (1979) recognised the overall generality of the Early Iron Age ceramics but suggested that culturally and geographically significant divisions within these could be identified. Van Noten studied Urewe type ceramics from Rwanda, Burundi and eastern DRC and identified eight different sub-types within these. Van Noten (1979: 71) used these ceramic sub-types to support his "Interlacustrine Early Iron Age Industrial Complex". However, Van Noten's model has been criticised because it is not based on a critical analytical framework and utilises undated sites with limited ceramic assemblages (with the exception of Tshamfu and Nyirankuba) and it fails to recognise the diversity within these sub-types, such as at Nyirankuba (Van Grunderbeek 1983: 25; 1988). Van Noten's (1979) site based distinctions can be contrasted with Van Grunderbeek's (1988) multi-variant, regional approach to Urewe ceramics from Rwanda, Burundi and DRC. Van Grunderbeek (1988: 47-49) found substantial generalised patterning across the region alongside site-based variation. However, she concluded that the evidence did not support assertions, such as Van Noten's (1979), that subtler diachronic or regional distinctions existed. However, Ashley (2005), in the most recent multi-variant analysis of Iron Age ceramics in the region, did identify meaningful variation at a local, site-based scale on the northern shores of Lake Victoria. For example, Ashley, through the employment of a *châine opératoire* approach to her ceramics (see Chapter 3 section 3.6), identified "Contact Urewe" (Fig. 4.7) a ceramic that is contemporary with Urewe and preserves many of the same ceramic traits but is lacking in the high levels of investment and technical skill normally seen in Urewe (Lane et al. 2007: 77). This combined with evidence of foraging alongside limited stock keeping, led Ashley (2005: 292-293) to suggest that the makers of this ceramic did not have long-term familiarity with Urewe but had contact with groups who did, resulting in the adoption of some of the "trappings" of a farming lifestyle and subsequently the production of a "creolised ceramic unique to the region" (Lane et al. 2007: 77). Whilst Lane et al (2007: 78) tentatively postulate a similar situation for the nearby site of Ugunja (Mosely & Davison 1992: 134), "Contact Urewe" remains a localised, historically situated phenomenon. Nevertheless, this example demonstrates the potential for localised Urewe variations that may also exist within Rwanda.

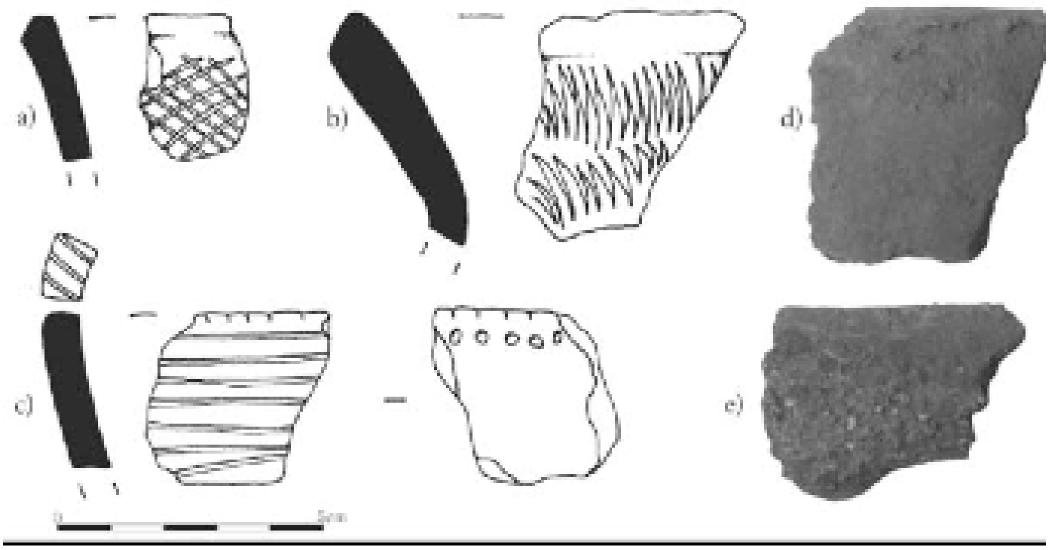

Fig. 4.7 Illustration showing ceramics from Usenge 3: a-c Urewe ceramic, d-e "Contact Urewe" (reproduced from Lane et al 2007: 77, Fig. 6)

6. **What happened to Urewe at the end of the Early Iron Age?**

Question six is related to the terminal 1st millennium hiatus (discussed in section 4.2) and is related to Question 5 above. However, here it is specifically concerned with the continuation or disappearance of Urewe technology. This topic has received some archaeological attention elsewhere in the region but has not been considered in relation to the Rwandan material. Thus, the regional data will be summarized here and where suitable Rwandan archaeological resources are encountered they will become a major focus of this thesis.

Urewe: Ceramic Transition

The dating discussion earlier in this chapter (section 4.2) established the existence of an archaeological hiatus between the disappearance of Urewe and the appearance of roulette-decoration ceramics in Rwanda, leaving a 200-300 year gap in the record that must be addressed. Within ceramic studies Posnansky was the first to suggest the existence of a post-Urewe ceramic. Posnansky (1967: 632, 1973; et al. 2005) identified a "devolved" form of Urewe on Lolui Island, Uganda (Fig. 4.8) that he believed represented a later ceramic related to the loss of ceramic production skills over time. However, his initial findings were questioned (e.g. by Soper 1971: 14) because they were not demonstrated stratigraphically and because no absolute dates existed. Yet, subsequent work by Ashley (2005: 299-304) has also identified a "devolved Urewe", part of her "Lutoboka Complex" on the Entebbe peninsula that has been dated to the terminal 1st millennium AD. Devolved Urewe can be described as having a high level of similarity with Classic Urewe whilst being poorer in execution and overall quality. For example, the most complicated elements of Urewe, bevelled rims, dimple bases and complicated incised motifs are drastically reduced and the vessel form range is decreased, although jars remain common (Ashley 2005: 302).

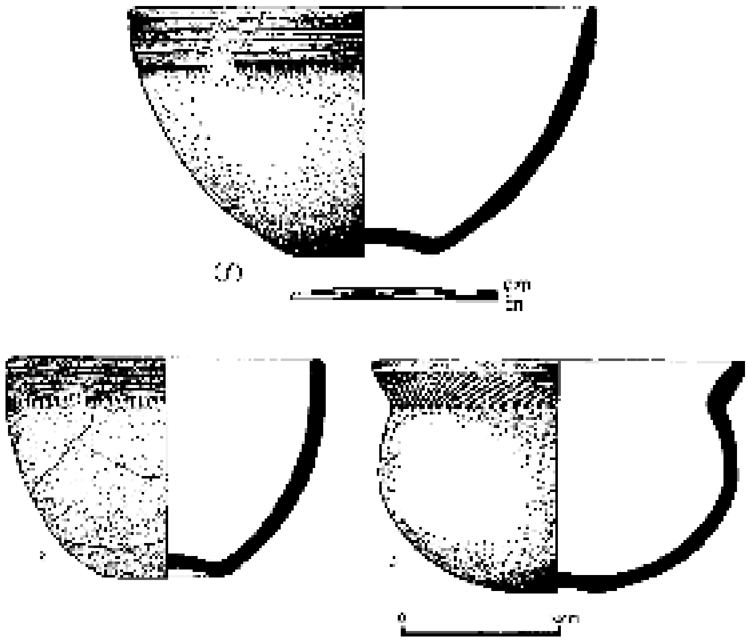

Fig. 4.8 Devolved Urewe ceramics from Lolui Island, Uganda (reproduced from Posnansky et al. 2005: 86-87: Figs 7 and 8)

Devolved Urewe has never been identified or indeed looked for in Rwanda. However, a number of sites exist with ceramics that don't fit the established Urewe/roulette-decorated dichotomy, such as Kabuye, (Fig. 4.9) Masangano (Fig. 4.10) Bugarama (Fig. 4.11) and Kiguhu (Fig 4.12) (Nenquin 1967a; Van Noten 1983; Simon 1983). These ceramics have commonly been lumped together under the term "C-Ware" and display incision and punctate decoration, with occasional dimpling on the bases and whilst they are clearly not Urewe they bear more resemblance to that tradition than they do to later roulette-decorated ceramics. None of these ceramics have been dated and those from Kiguhu are from mixed surface remains (Simon 1983: 145-147). Of these sites, the Bugarama ceramics represent the assemblage with the greatest stratigraphic potential being identified in deposits directly underlying Late Iron Age levels containing roulette-decorated ceramics (Simon 1983: 137-144). Whilst it is too early to posit a relationship between these ambiguous ceramics and Urewe, the existence of ceramics in Rwanda that do not fit the established framework represents a potentially interesting avenue of research. Therefore, these sites will be returned to during this research in the hope of collecting stratigraphiclly secure, dateable assemblages, which may aid the exploration of the archaeological hiatus at the end of the Early Iron Age.

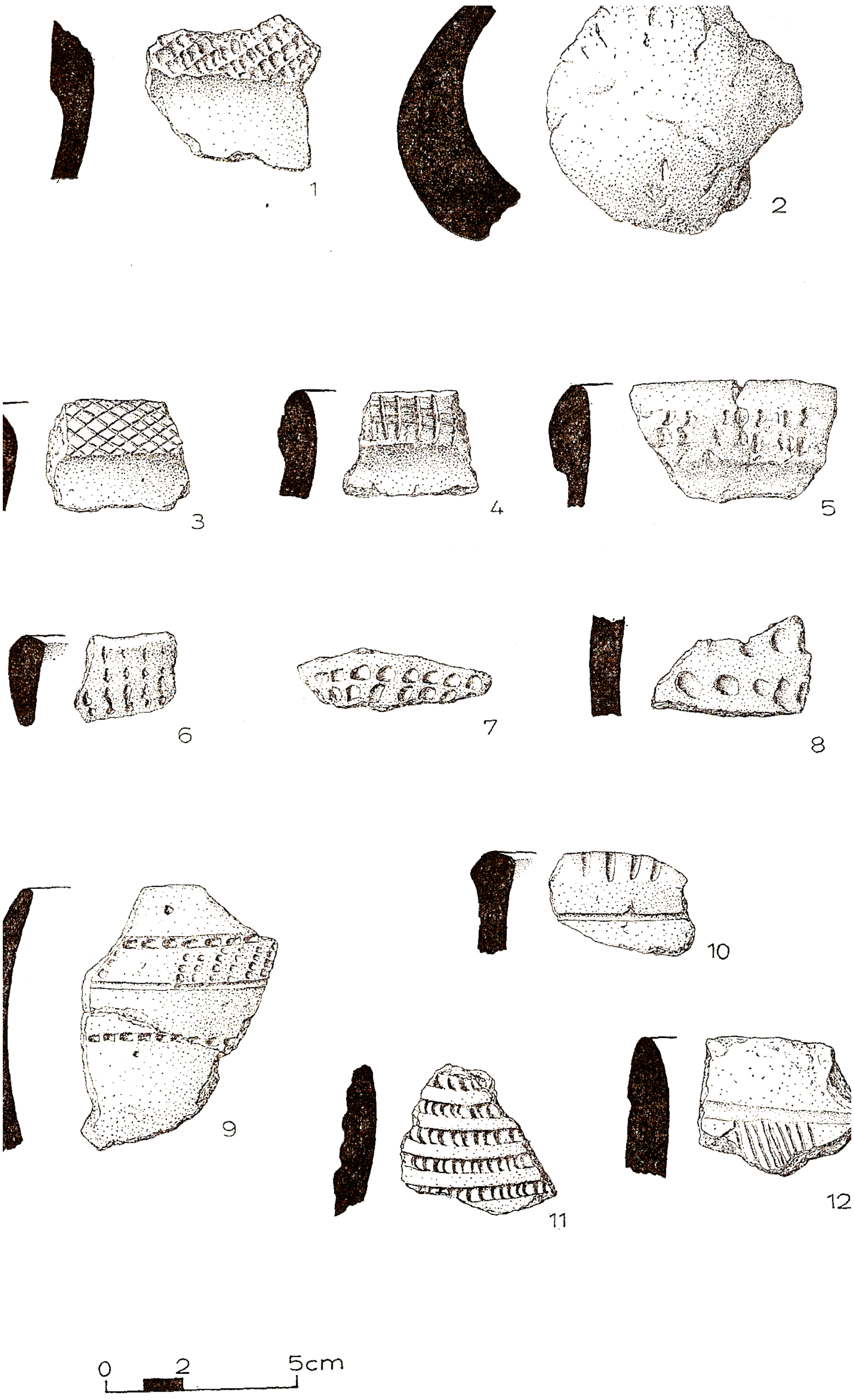

Fig. 4.9 Illustration showing "C-Ware" (2-12) ceramics from Kabuye, Rwanda (reproduced from Nenquin 1967a: 285, Fig. 165)

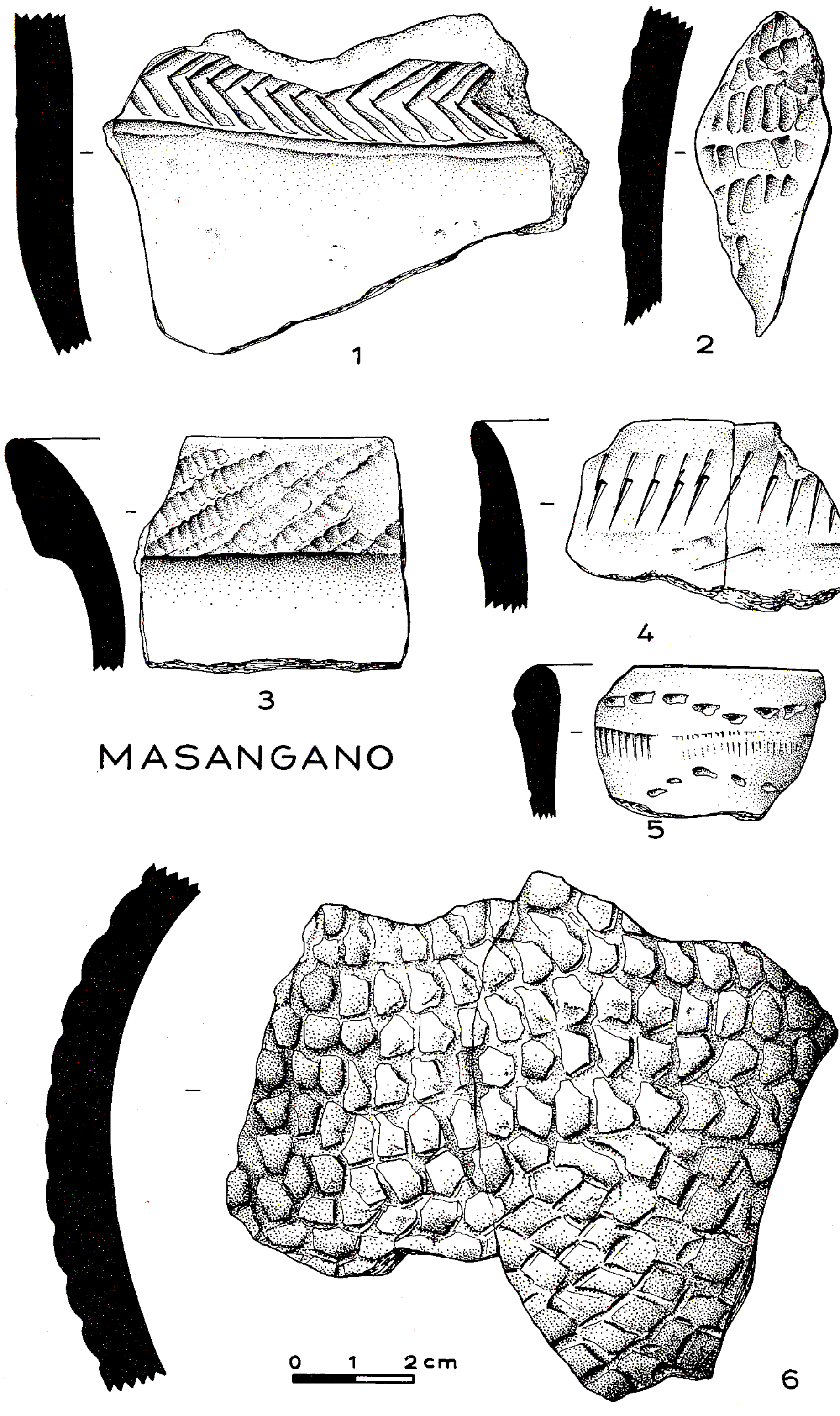

Fig. 4.10 Illustration showing non-Urewe ceramics from Masangano, Rwanda, including twisted-string roulette decorated ceramics (2-3) and "C-Ware" ceramics (1,4-6) (reproduced from Van Noten 1983: Plate 47)

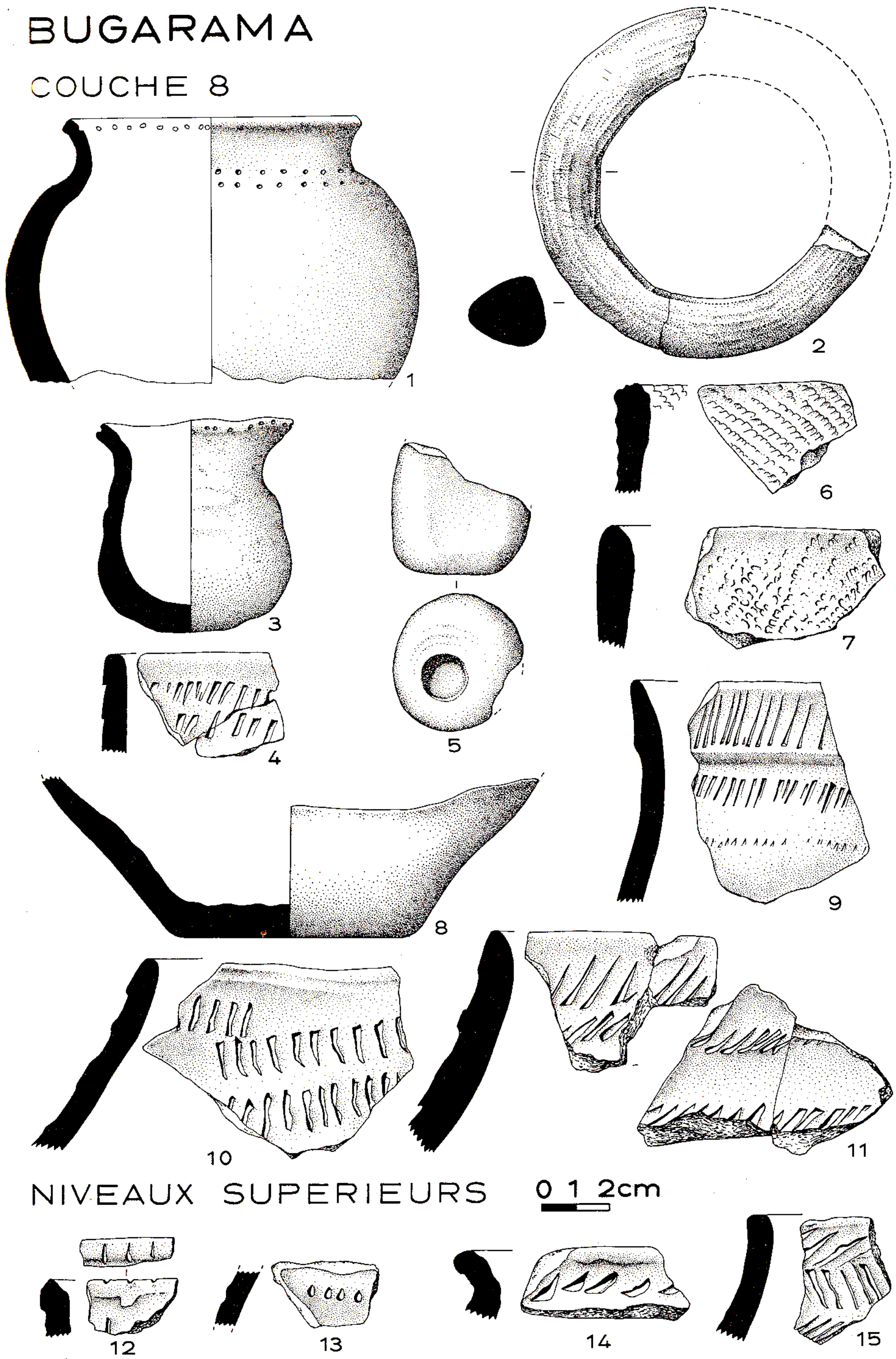

Fig. 4.11 Illustration showing ceramics from Bugarama, Rwanda including non-Urewe, "C-Ware" (1-4, 8-15) and twisted-string roulette-decorated (6-7) (reproduced from Van Noten 1983: Plate 95)

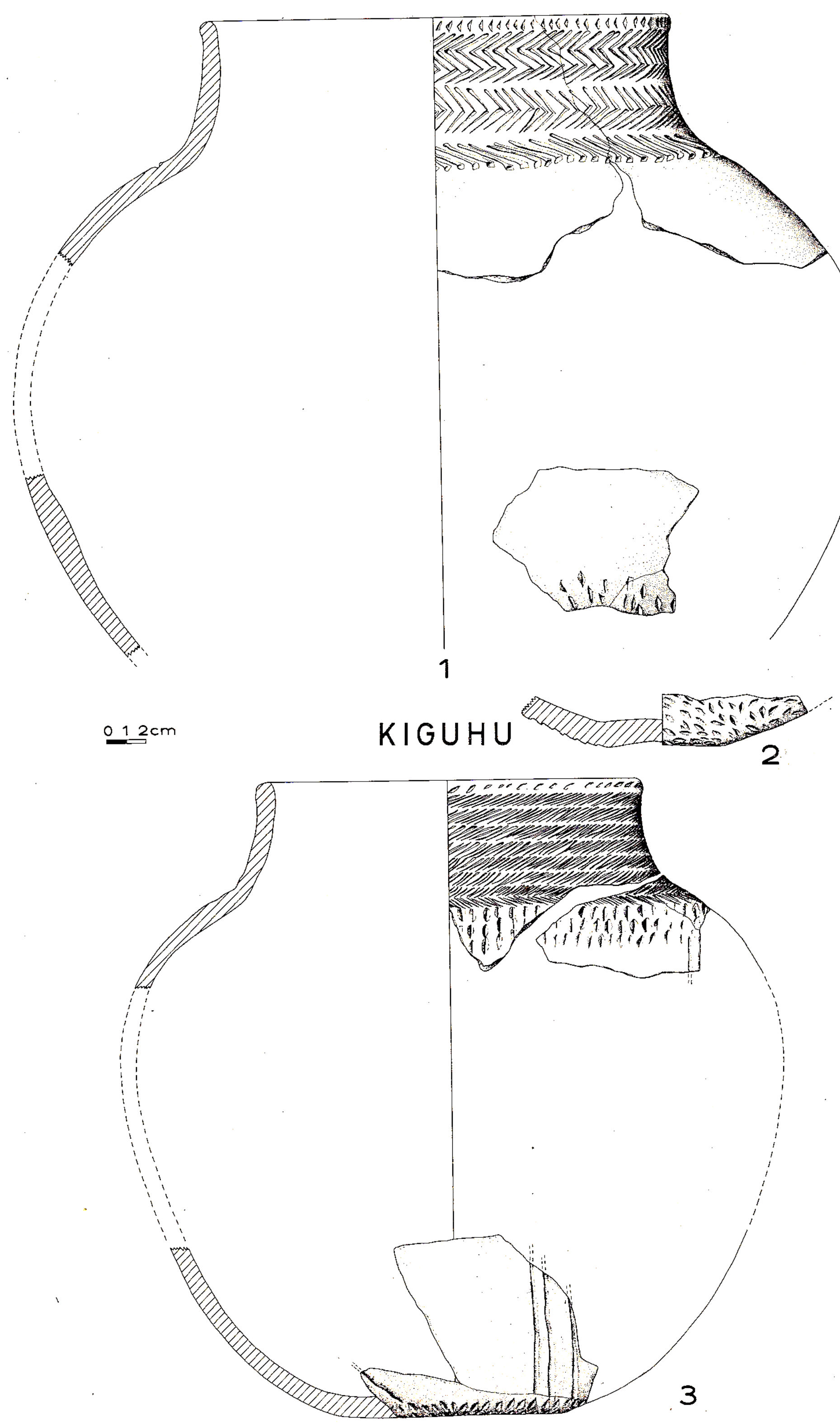

Fig. 4.12 Illustration showing incised, non-Urewe, "C-Ware" ceramics from Kiguhu, Rwanda (reproduced from Van Noten 1983: Plate 96)

7. **What is the social meaning of Urewe pottery to its makers and users?**

Question seven concerns the social and symbolic significance of Urewe. Due to poor contextual data, such as a lack of detailed Urewe settlement data (see section 4.10 for further discussion), little is known about this issue. However, it is an important topic if we are to gain further insights into the lives of Urewe users, and to move beyond simply describing the ceramics themselves. Thus, the extant data will be briefly summarised below and where Urewe ceramics are identified in socially meaningful contexts during this research this subject will be explored.

The social and symbolic context of Urewe remains illusive. Urewe ceramics can be assumed to have been symbolically important to its makers and users, based on the high level of technical investment necessary for its production, including the intricate decoration afforded it, and the functional potential it provided, such as in the storage, cooking, and serving of food. However, in the absence of detailed contextual data such suggestions remain speculative, based on modern values drawn from ethnographic analogy.

Nevertheless, it is possible to begin exploring Urewe ceramics as a socially embedded material. For example, the occurrence of deliberately deposited Urewe ceramics represents an intriguing set of circumstantial evidence: e.g. at Tongo in DRC Urewe ceramics have been found in a grave (Misago and Shumbusho 1992); in Kenya at Siaya Leakey et al. (1948) found Urewe vessels deliberately deposited in stone lined pits; and in Uganda at Lolui Island Posnansky et al. (2005) have identified large numbers of deliberately deposited Urewe sherds in rock crevices that are not associated with habitation areas. Finally, in Rwanda Van Grunderbeek et al. (1983) and Van Noten (1983) reported an Urewe "medicine pot" that was interred beneath an Early Iron Age iron-smelting furnace (Fig. 4.13). (These examples will be discussed in more detail later in this chapter in section 4.10 under socio-political organisation).

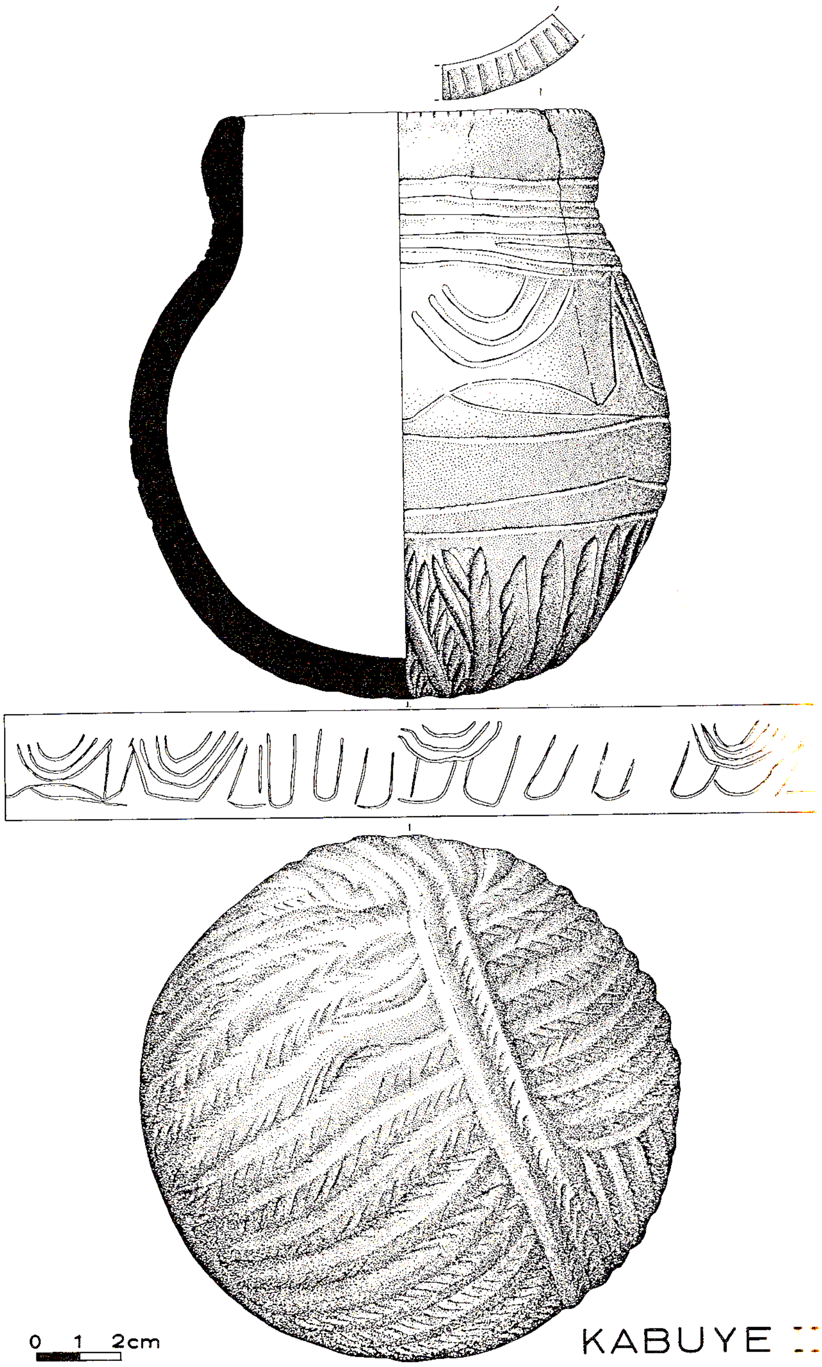

Fig. 4.13 Illustration showing "medicine pot" excavated from beneath a furnace base at Kabuye II (reproduced from Van Noten 1983: Plate 16)

Whilst these examples remain too thinly spread across the region to make any confident conclusions this anecdotal pattern does support the suggestion that Urewe, whilst clearly having a functional value within 1st millennium AD food storage, cooking and serving practices, also retained a strong symbolic association. Thus where this research encounters deliberately deposited Urewe ceramics it will focus on these contexts in order to contribute further to this discussion.

4.5 Late Iron Age Ceramic Studies

Ceramics and metallurgy, as in the Early Iron Age, dominate the archaeologically identifiable technologies of the Late Iron Age. However, roulette-decorated pottery, unlike Urewe, is not noted for its high quality. Instead Late Iron Age roulette-decorated pottery is characterised by rough larger forms suggestive of a more utilitarian ware (Fig. 4.14). There are three main types of roulette decoration recognised in Great Lakes Africa: carved-wooden roulette (Fig. 4.15), twisted-string roulette (Fig. 4.16) and knotted-strip roulette (Fig. 4.17). However, only twisted-string and knotted-strip roulette have been identified in Rwanda. Twisted-string roulette is found throughout the Late Iron Age in Rwanda, whilst knotted-strip roulette generally appears later in the 2nd millennium AD (approximately AD 1500 onwards) (Nenquin 1967a; Van Noten 1983; Desmedt 1991). However, within Great Lakes Africa these boundaries are not clear. For example in Uganda these ceramics both appear at the same time (Reid 1994/5).

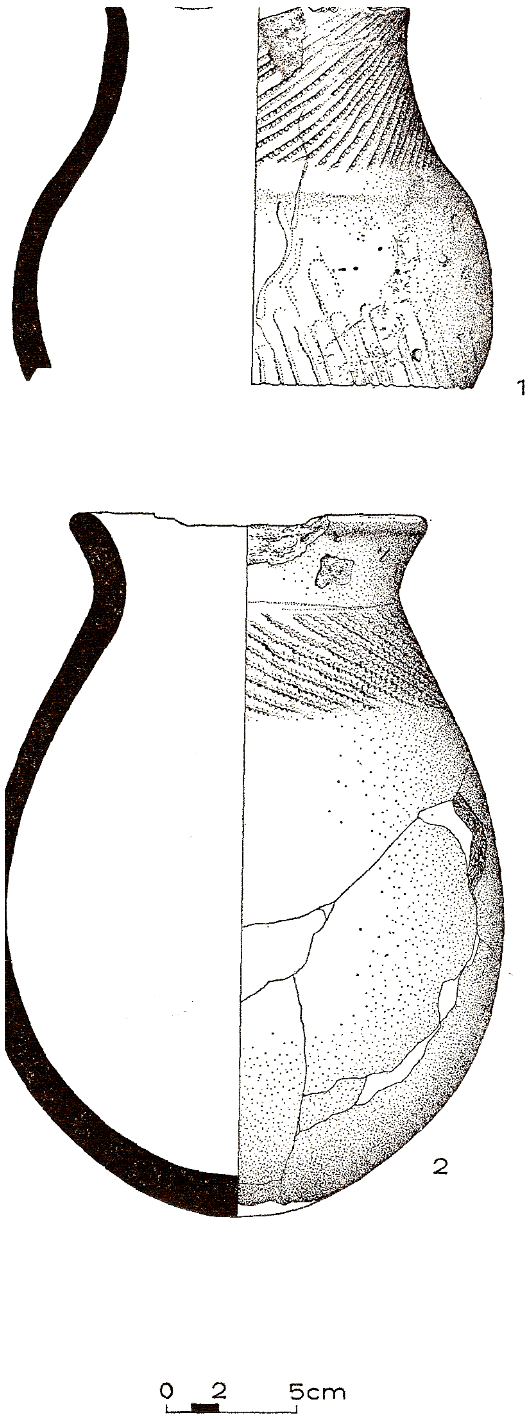

Fig. 4.14 Showing roulette-decorated ceramics from the Musanze Caves, Rwanda (reproduced from Nenquin 1967a: 279, Fig. 163)

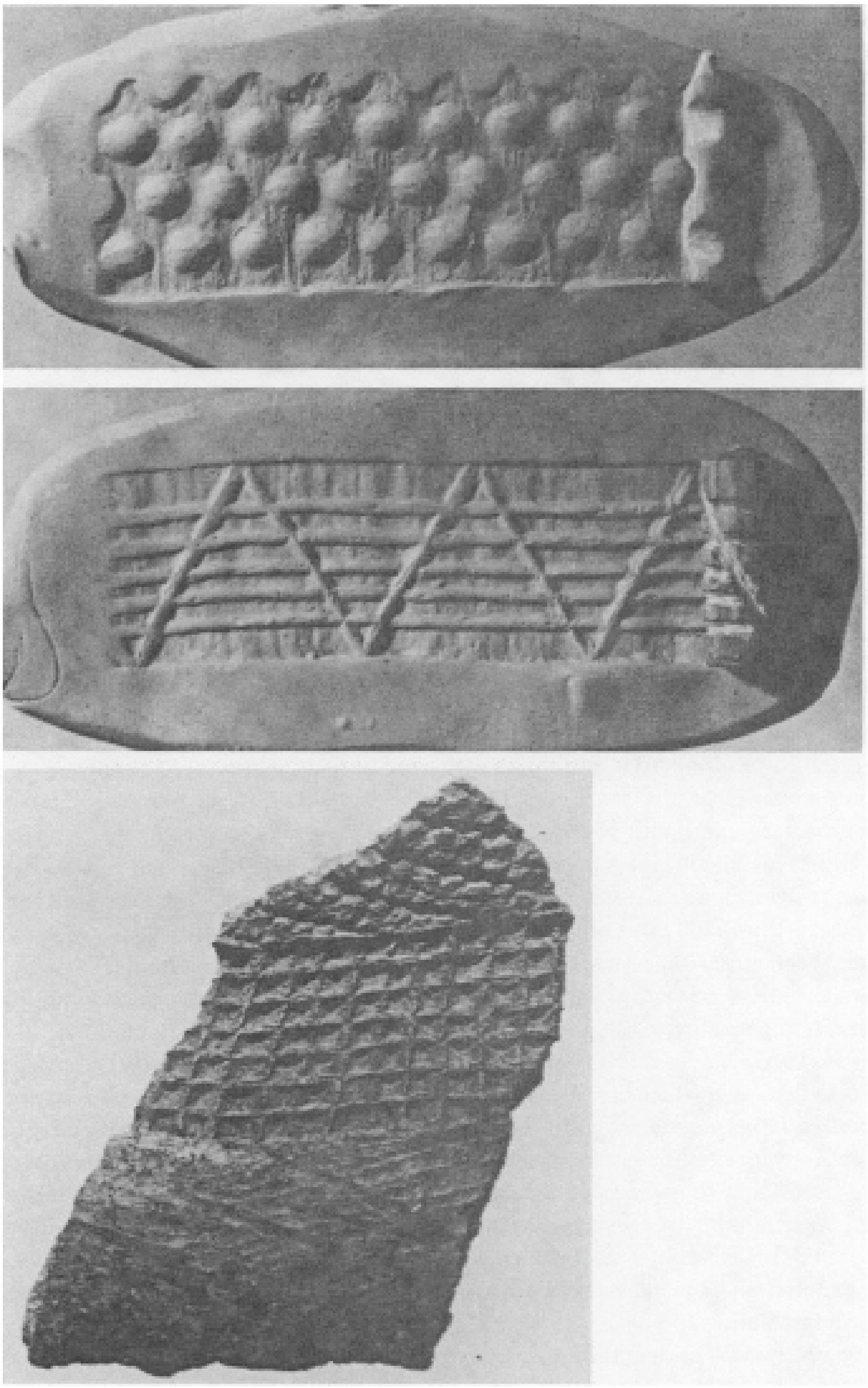

Fig. 4.15 Photographs showing impressions made by carved wooden roulette-decoration (reproduced from Soper 1985: 34, Fig. 2)

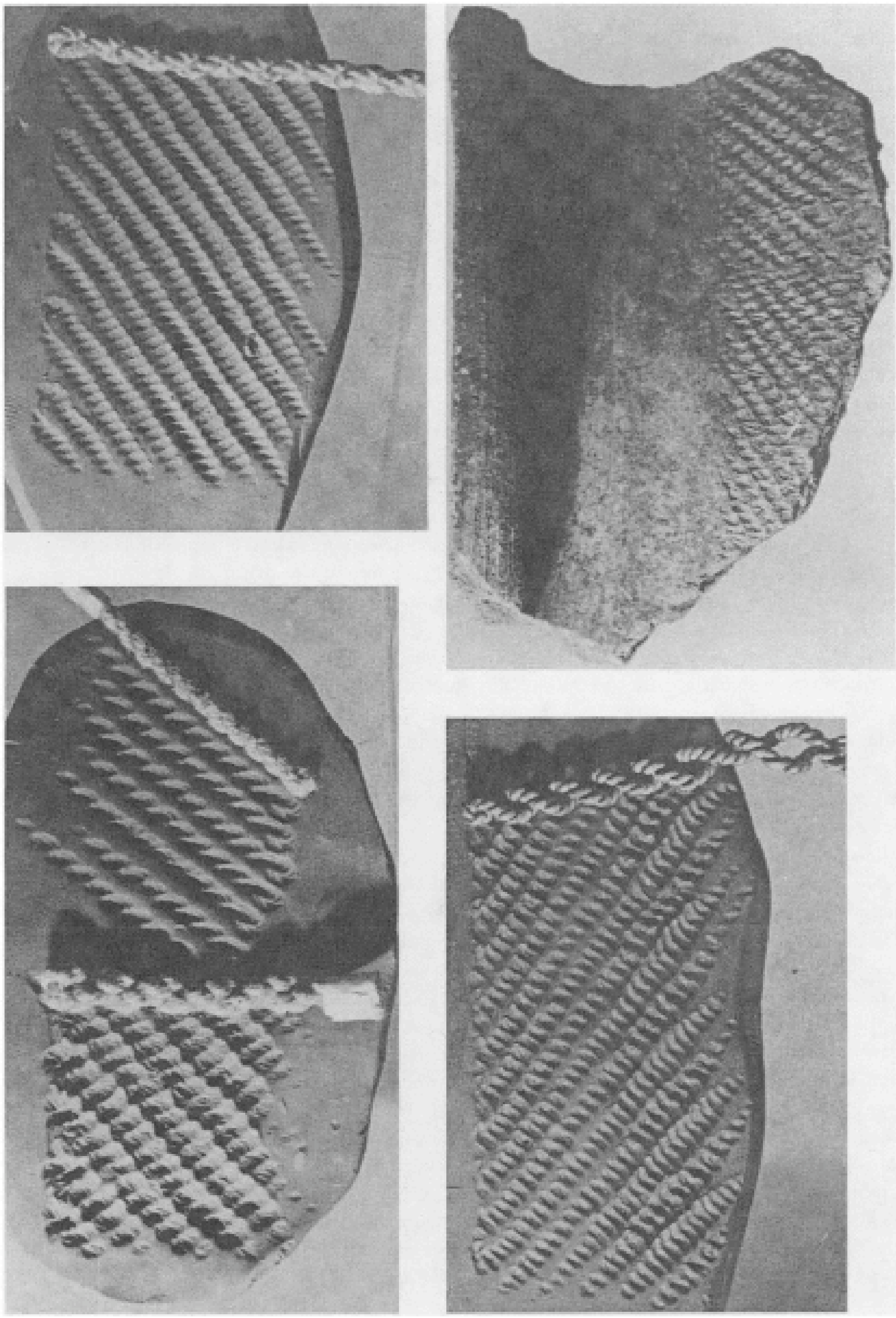

Fig. 4.16 Photographs showing impressions made by twisted-string roulette decoration (reproduced from Soper 1985: 36, Fig. 3)

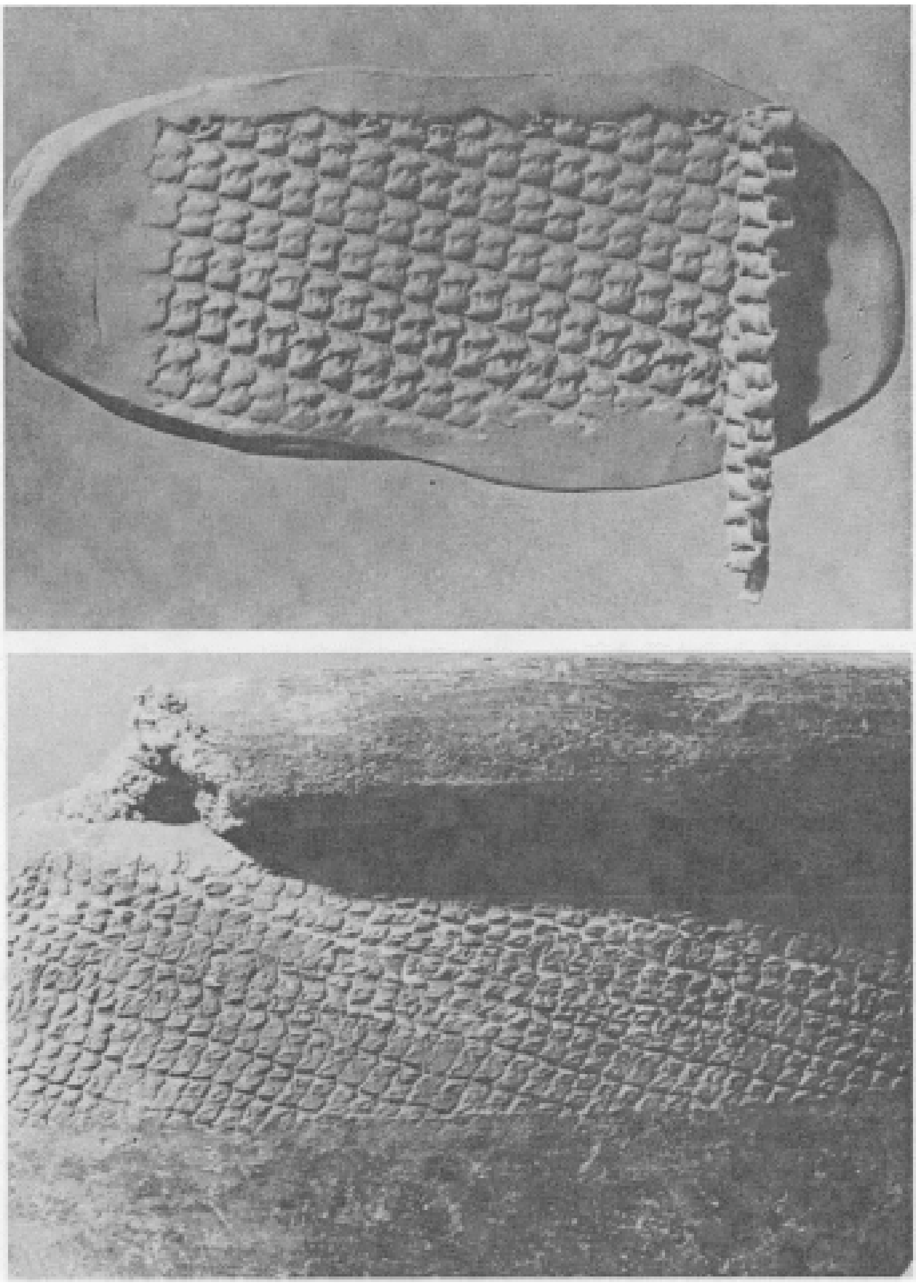

Fig. 4.17 Photograph showing impressions made by knotted-strip roulette decoration (reproduced from Soper 1985: 38, Fig. 5)

Late Iron Age ceramic research has followed slightly different research trajectories in Francophone Africa compared to Anglophone Africa and as such have received different classificatory names. Following "A-Ware" or "A-Type", roulette-decorated ceramics have been termed "B-Ware", and "B-Type" and "C-Type" (Figs. 4.18-20) (Hiernaux and Maquet 1960; Nenquin 1967a, 1967b; Van Noten 1983). "B-Ware" relates to both twisted-string roulette and knotted-strip roulette ceramics (e.g. see Nenquin 1967a), whilst Van Noten (1983) differentiated between the two calling twisted-string roulette-decorated ceramics "B-Type" and those he believed to be later, most commonly knotted-strip roulette ceramics, "C-Type". Today, both twisted-string and knotted-strip rouletting continue to be applied to vessels across the region.

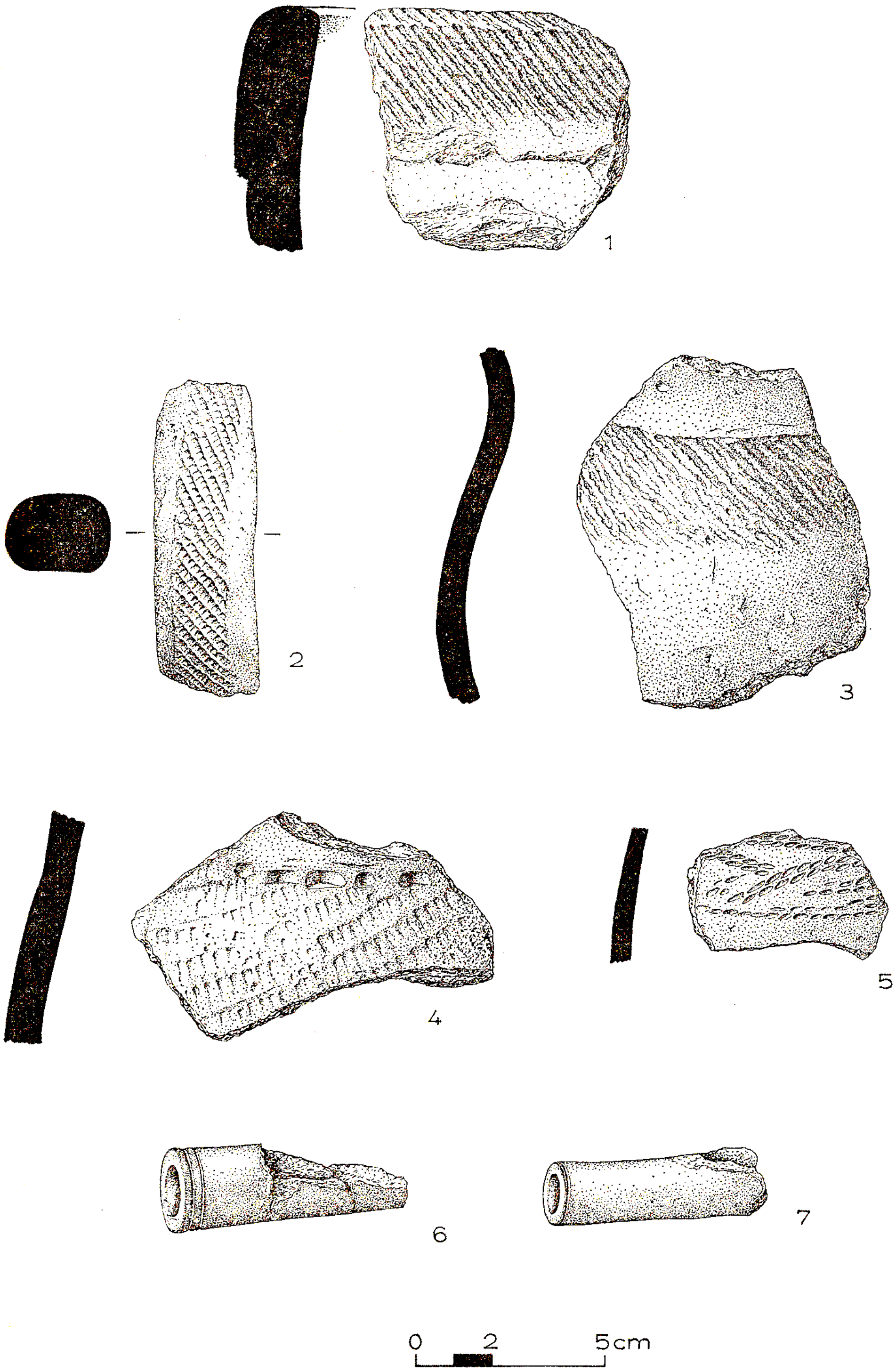

Fig. 4.18 Illustration showing "B-Ware", twisted-string roulette decorated ceramics (and two unrelated pipe-stems) from Muyaga, Rwanda (reproduced from Nenquin 1967a: 277: Fig. 162)

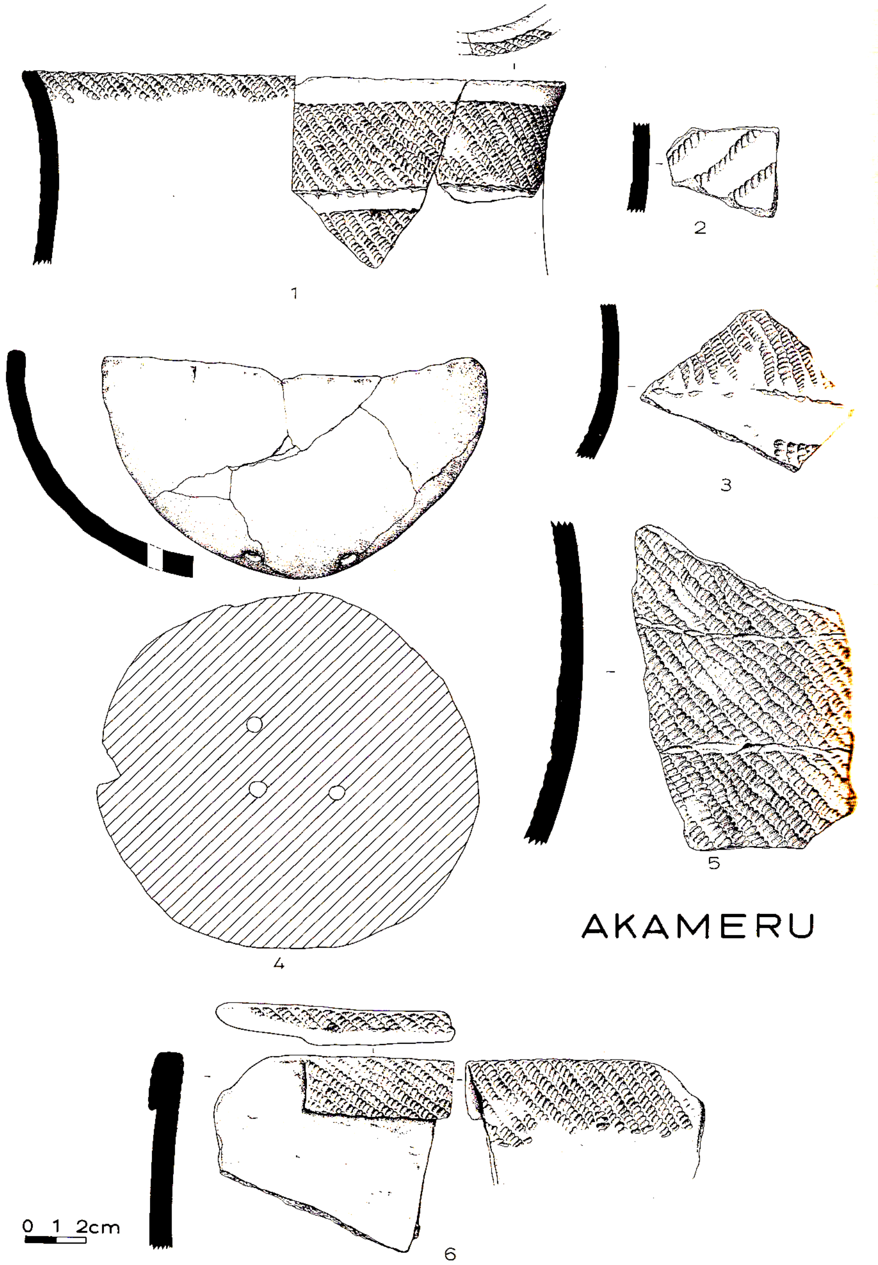

Fig. 4.19 Illustration showing "B-Type" twisted-string roulette-decorated ceramics from Akameru Cave, Musanze, Rwanda (reproduced from Van Noten 1983: Plate 44)

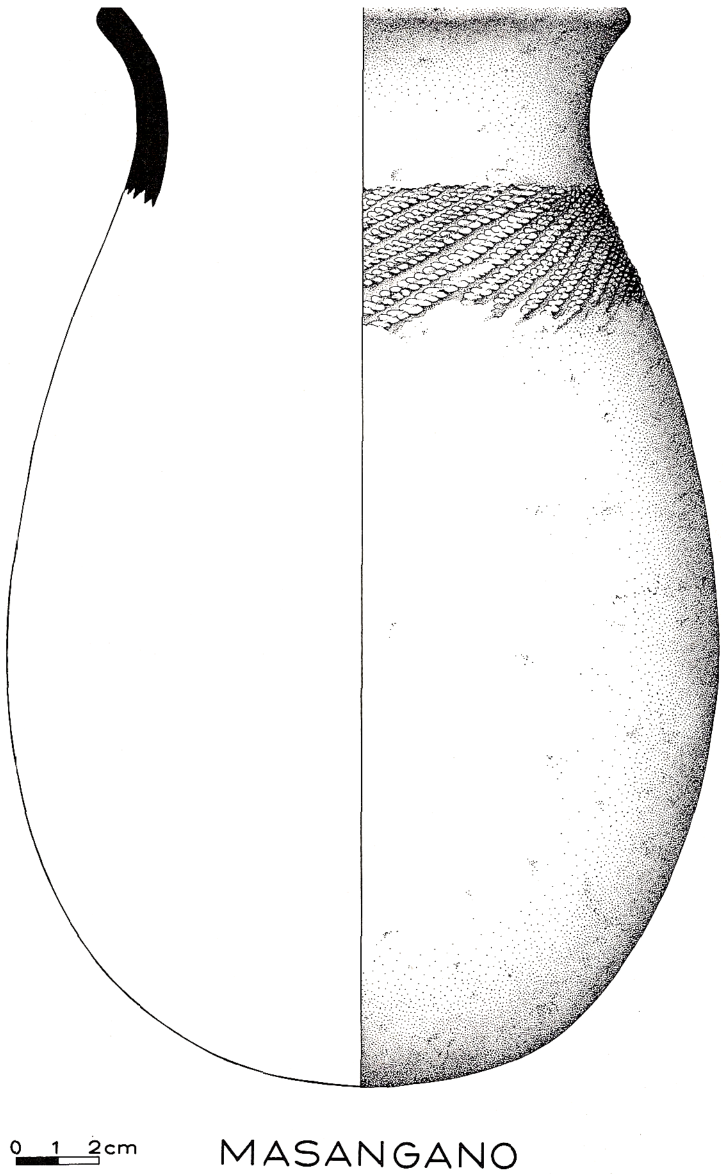

Fig. 4.20 Illustration showing a "C-Type" knotted-strip roulette decorated vessel from Masangano (reproduced from Van Noten 1983: Plate 46)

Late Iron Age roulette-decorated ceramics are generally of poorer quality than Urewe and are frequently made from coarse fabrics. Rims commonly consist of simple rounded forms and the complicated bevelling seen in Urewe is no-longer present. Bases may be rounded or flattened, and whilst burnishing is rare, paint or slip may be applied. Work at Ntusi (Reid 1994/5) showed that vessel forms are commonly confined to necked jars and open and hemispherical bowls whilst decoration is commonly applied close to or on the neck of the vessel. Unlike Urewe, decoration may also be applied to the interior of the vessel.

Compared to Urewe studies, until recently there has been relatively little interest in roulette-decorated ceramics, other than as a dating tool and its socio-political significance has been ignored. This may be related to an over-emphasis on the importance of dating the beginning of the Iron Age through association with Urewe and the prevailing belief amongst archaeologists that there was little distinguishable, significant, variation in the Late Iron Age roulette-decorated ceramic muddle. However, with a growing interest in Late Iron Age socio-political development and the emergence of statehood, a number of detailed ceramic studies have taken place (e.g. Desmedt 1991; Reid 2002; Ashley 2005; McMaster 2005). Desmedt (1991: 162) identified various roulette types in Great Lakes Africa and by using historical lexicon evidence attributed these to specific ethno-linguist groups. For example, Desmedt called twisted-string roulette 'W-Group' and attributed it to speakers of southern Nilotic languages who she suggests triggered the beginning of the Late Iron Age in 800AD. Desmedt also attributed knotted-strip roulette ('X-Group') and "luxury" thin twisted-string roulette ('Y-Group') to Western-Nilotes coming from the north, which she suggests replaced the 'W-Group'. Desmedt further divides her 'Y-Group' into three separate regional styles specific to three different ethnic groups (Desmedt 1991: 161-163). However, Desmedt's model is unsatisfactory because she identifies ethno-linguistic decorative types that she has failed to adequately demonstrate are stylistically distinct from each other. Furthermore, her ethno-linguistic migratory path for each group is based on tenuous site affiliation often separated by thousands of kilometres (Fig. 4.21).

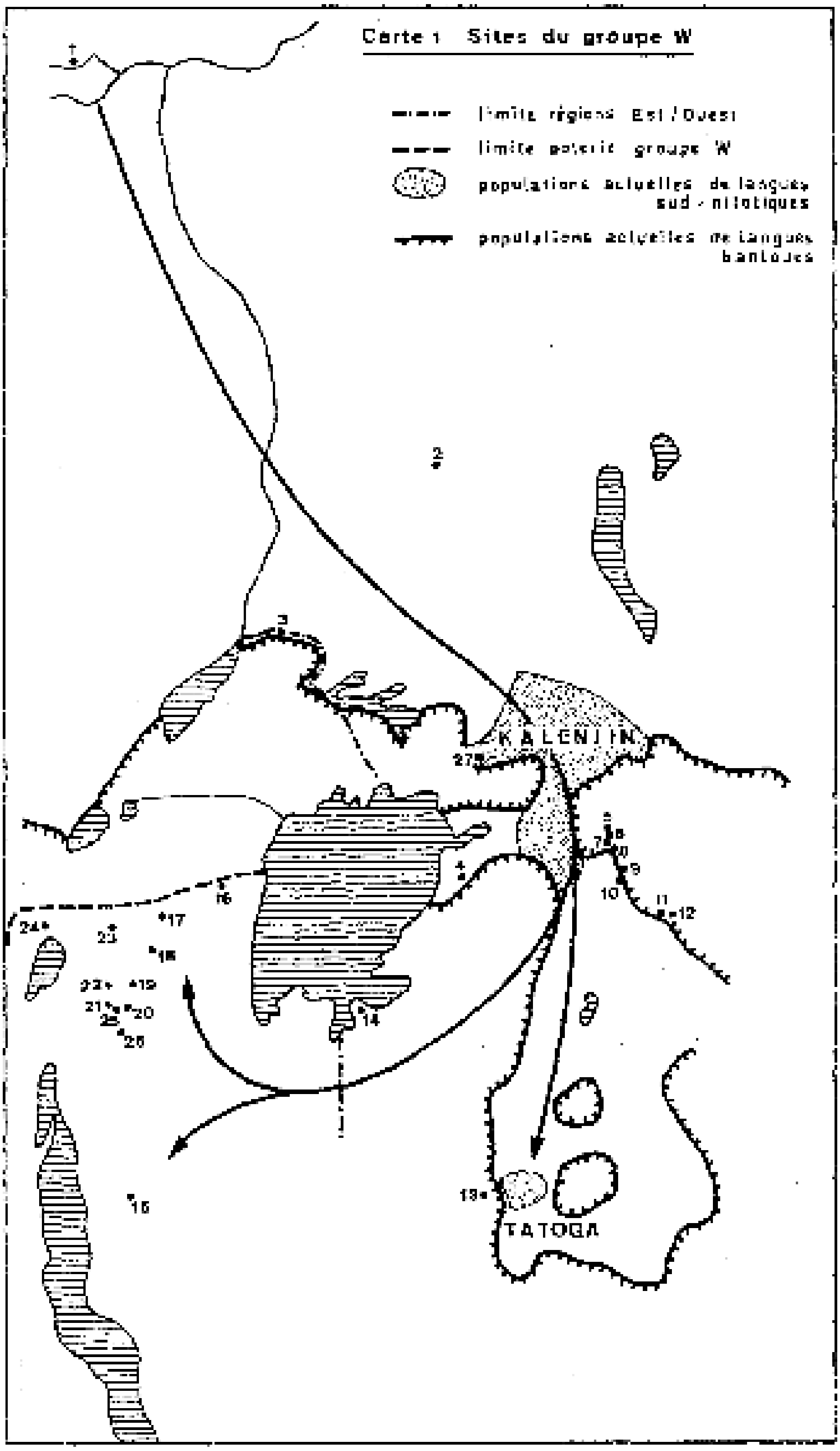

Fig. 4.21 Map showing Desmedt's (1991) ethno-linguistic roulette-decorated ceramic migration model (reproduced from Desmedt 1991: 174)

McMaster (2005) has also investigated roulette decoration and its relationship with language shift in the "interlacustrine regions" and has proposed an alternative entry route to Desmedt to the west of Lake Victoria (Fig. 4.22). However, in contrast to

Desmedt (1991) she didn't rely solely upon historical lexicon evidence but also studied the lexicons of working artisans (McMaster 2005: 44). McMaster (2005: 61) also criticises Desmedt because her model attributes the introduction of roulette-decorated ceramics to the ancestors of contemporary peoples who do not produce them today. Furthermore, McMaster (2005: 43), unlike Desmedt (1991), postulates that language shift and the spread of new ceramic types into the region by adoption, and not necessarily migration, may account for the replacement of Urewe ceramics by roulette-decorated ceramics after 800AD. McMaster's study suggests based on historical linguistics that twisted-string roulette decoration arrived in Rwanda after 500AD and before 1000AD. This she fits with three uncalibrated Rwandan radiocarbon dates associated with twisted-string roulette-decorated pottery: 730±220 at Mucucu II (Lugan 1983: 132) 740±45 at Cyamakuza (Van Grunderbeek et al 1983: 44) and Akameru 895±75 (Van Noten 1983). However, as McMaster (2005: 60) points out the first of these has a large margin of error and the two remaining dates (discussed in section 4.3 of this chapter) cannot at present be the basis for a conclusion, because of their isolation, until further work is done on the beginning of the Late Iron Age.

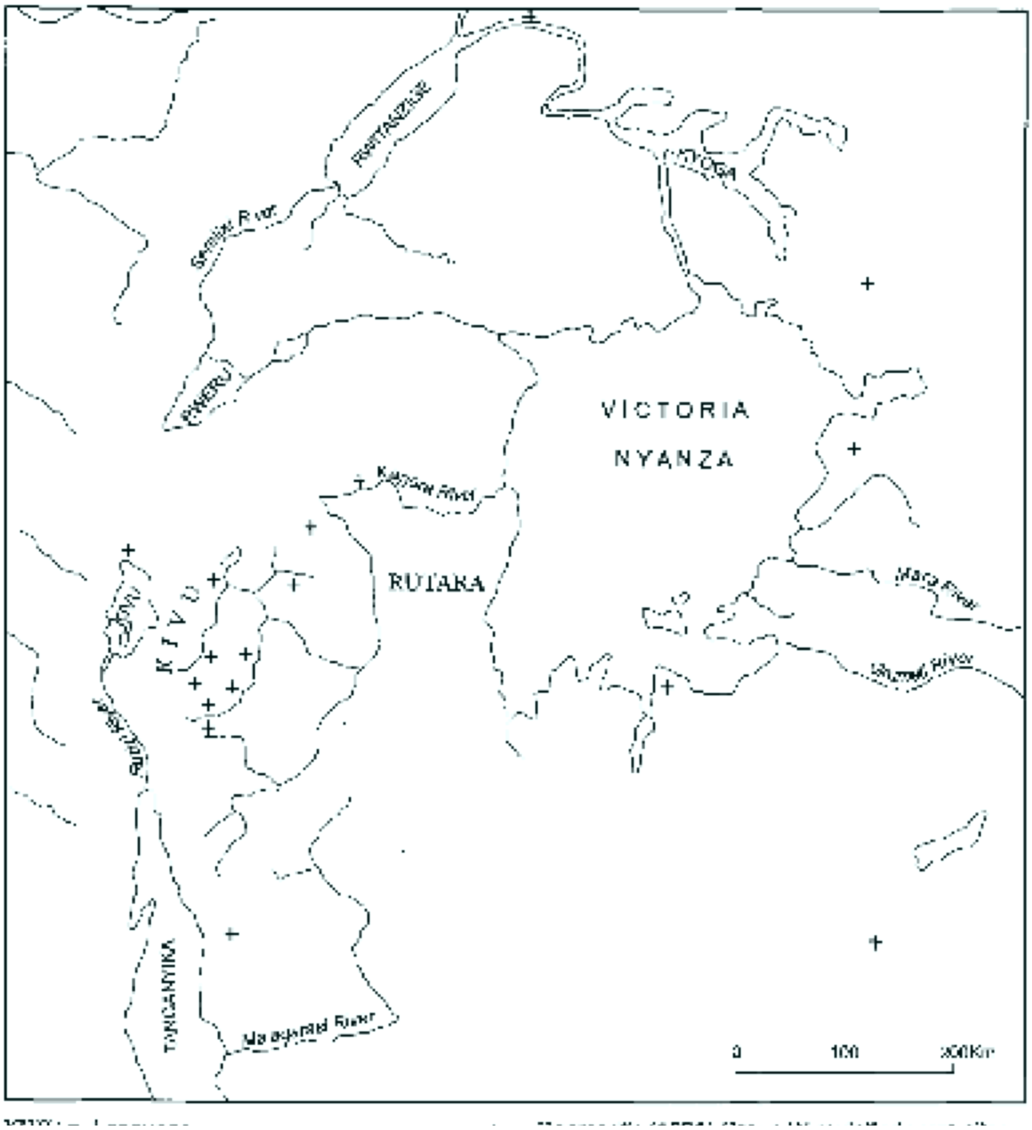

Fig. 4.22 Map showing the "distribution of Group W Ware sites [+] in relation to Rutara and Kivu-speakers, c.500 – 1000 AD. If the route of entry proposed here is correct, then the earliest evidence of rouletted ceramics in the Interlacustrine region should lie between Lake Rweru and Lake Kivu" (reproduced from McMaster 2005: 62, Fig. 6)

Reid (2002, 2004) and Ashley (2005) as part of ongoing research in Buganda, Uganda, have re-investigated a range of Late Iron Age ceramics including Entebbe Ware and have identified some new types including Sanzi Ware. However, these types appear to be tied to the northern shores of Lake Victoria and have not been identified elsewhere. Nevertheless, they have been shown to be discrete variations within the roulette-decorated mix. Suggesting that socially meaningful variations may exist and be identifiable within roulette-decorated ceramics from other regions if approached through similar multi-variant analysis, using a *châiné opératoire* approach (see Chapter 3 section 3.9), at a site based and inter-site level. This suggestion implies a context for roulette-decorated ceramics as a socially embedded technology. However, whilst this is supported by more recent ethnoarchaeological studies of roulette-decorated ceramics in Great Lakes Africa (e.g. see Benjamin 2001 and Giblin 2003 for Buganda; and Kohtamaki 2009 for Rwanda) little is known about deeper time periods in the 2nd millennium AD. (Although oral traditions for Buganda record potters who were closely related to the origin myths of the kingdom, e.g. Roscoe 1911). For these periods archaeologists must return to the deliberate deposition of ceramics, as with the 1st millennium AD ceramics already discussed, and the occurrence of luxury ceramics alongside more utilitarian wares.

In Rwanda the deliberate deposition of roulette-decorated ceramics is known at Ruli where whole pots filled with grain and legumes have been found in a grave containing multiple skeletons (Hiernaux and Maquet 1960; Nenquin 1967a). However, there is no absolute dating for the grave and the contextual data remains problematic (for discussion of this grave see section 4.10). Roulette-decorated ceramics were also found in the Rwandan royal graves excavated by Van Noten (1972, 1983). Although these graves were created in modern times, the grave goods from Cyirima Rugugira's burial are believed to date to the 17th century (see discussion section 4.10). Significantly these graves contain high quality roulette-decorated ceramics that can be compared to the more frequently encountered coarse types that dominate 1st millennium AD ceramics in this region. Furthermore, Desmedt (1991: 185-190) has suggested that these luxury ceramics, her "Group Y", appeared during the 16th century AD in Great Lakes Africa before which only the coarser utilitarian ware has been identified, subsequently, Vansina (2004: 18) has suggested that the appearance of this luxury ware may be associated with growing wealth in the region and the establishment of the kingdoms. Whilst this historical argument remains speculative without more detailed dating evidence, it is clear that roulette-decorated ceramics not only played a utilitarian role in the 2nd millennium AD but also were associated with socially and symbolically important contexts.

Research Questions:

The main research topics concerning Late Iron Age roulette-decorated ceramics then can be summarized as:

1. **When did roulette-decorated ceramics arrive in Great Lakes Africa?**

Question one is related to the archaeological hiatus discussed above (section 4.2) and is also of particular relevance here because some of the earliest dates from roulette-decorated ceramics have come from Rwanda. Thus, although this thesis has criticised archaeologists for searching for the origins of Urewe, clarifying the early dates for roulette-decorated ceramics in Rwanda will be a research objective. Unlike the rare early Urewe dates that cannot easily be returned to because they often come from fully excavated furnace bases, the early roulette dates come from partially excavated cave deposits, amongst other contexts, allowing for their re-investigation today.

2. **How did roulette-decorated ceramics appear in Great Lakes Africa?**

Question two is concerned with the origins of roulette-decorated ceramics often discussed in terms of the ethno-linguistic origins of its users. However, whilst this topic is prominent in Late Iron Age ceramic studies it doesn't conform to the theoretical framework developed in Chapter 3 that questions the attribution of ethnic status to archaeological ceramics in a Rwandan context. Moreover, whilst linguistic studies carried out by Desmedt (1991) and McMaster (2005) have shown this to be a fruitful, if contested, avenue of study, this subject is a regional question that is beyond the scope of this study and thus this topic will not be tackled by this research.

3. **Can meaningful variation be identified within roulette-decorated ceramics?**

Question three concerns the potential for roulette-decorated ceramics to display meaningful spatial or temporal variation. This subject has been demonstrated to be a rewarding avenue of research by recent studies and is consistent with the theoretical framework discussed in Chapter 3. Therefore this will be a major research objective and all Late Iron Age ceramics will be subjected to multi-variant ceramic analysis in order to tease out any potentially significant ceramic patterns.

4. **What was the social role of roulette-decorated ceramics?**

Question four is related to question three, and concerns the social and symbolic context of roulette-decorated ceramic production and use. Thus, where definable variation is observed, preferably in relation to good contextual data alongside other forms of archaeological evidence, this thesis will attempt to explore the immediate social and symbolic context of roulette-decorated ceramics as a socially imbedded technology with the potential to communicate social information through the observation of meaningful continuities and variation.

4.6 Iron Production Studies

Early iron production in Rwanda, Burundi and western Tanzania, has received a lot of attention (e.g. Van Grunderbeek et al. 1983, 2001; Van Noten 1983; Schmidt 1997; Craddock et al. 2007). Concentrated evidence for iron production in Early Iron Age Rwanda comes from Butare (Kinyarwanda meaning 'place of iron ore') where twenty furnaces were excavated (Van Grunderbeek et al. 2001: 273). The furnaces were mostly bowl-shaped with a conical superstructure occasionally made from decorated bricks (Raymaekers and Van Noten 1986; Van Grunderbeek et al. 1983). An Urewe pot containing white clay or kaolinite was also discovered interred under a furnace base suggesting a socio-symbolic element to smelting (Van Noten 1979: 65-66). Current research by Humphris (2008) has found more evidence of Early Iron Age smelting in southern Rwanda at Gahondo.

The existence of very early dates for iron working in Great Lakes Africa and West Africa led to suggestions of independent invention in sub-Saharan Africa (e.g. Trigger 1969). Based on a series of very early dates from Buhaya in Tanzania, Rwanda and Burundi, dating between 2700 and 4000BP, Trigger (1969) suggested that iron metallurgy was older in Great Lakes Africa than in Meroe, the next nearest early centre for iron production, dated to c.500 BC (Shinnie 1967), and thus must have been independently invented in Great Lakes Africa (Killick 2009: 405). In contrast other archaeologists such as Soper (1971: 30) considered whether iron technology in Great Lakes Africa had originated and spread from elsewhere. For example iron working was known in Nigeria in the 4-5th centuries BC (Fagg 1969) and in northern Ethiopia at Matara 5th century BC (Anfray 1967). Soper (1971: 31) also considered the possibility of iron working entering Great Lakes Africa via the coast. However, Soper (1971:31) rejected the coastal route due to a lack of evidence, rejected West Africa as "unlikely" and suggested that independent invention is "exceedingly improbable". Thus, whilst Soper suggested the origin of Great Lakes Africa iron technology was in the north, he believed that more research was needed in the southern Sudan belt, between Chad and the Nile, and Ethiopia, to provide the necessary connections to trace the route.

Since the beginnings of this debate many more dates have been produced (e.g. Van Grunderbeek et al. 2001, 2007; Schmidt and Childs 1985; Schmidt 1997) and many of these have fallen in the 1000 to 2000 cal BC range leading to continued suggestions of independent invention. However, Schmidt has now rejected the earliest of these dates for Buhaya (1997: 14) and Van Grunderbeek et al. (2001; also see Craddock et al. 2007) have distanced themselves from the 2nd millennium BC dates for Rwanda and Burundi. Thus, iron metallurgy is now believed to have appeared in western Great Lakes Africa at some point during the 1st millennium BC. However, it is difficult to be more precise because these dates fall within a "black hole" in the radiocarbon curve resulting in the calibrated dates (2 sigma) all being give a date range of between 800-400 cal BC exactly the period in which the earliest iron working evidence exist at Meroe (Killick 2009: 406). Thus, in the absence of furnace remains and other iron production waste at Meroe, that could aid typological comparison, it is unlikely that this debate will be resolved soon.

Following the rejection of the early dates for the western Great Lakes Africa region Killick (2004) has explored other locations in sub-Saharan Africa where iron metallurgy may have been independently invented. Killick (2004: 103-104) found that the case for the independent invention of iron working now hinges on the evidence from Niger at sites such as Termit (e.g. Paris et al. 1992 cited in Killick 2004). However, Killick (2004: 104) questions the association between the radiocarbon dates and the iron samples, the absence of iron production remains at these sites and the lack of radiocarbon evidence for iron working before 2500BP at neighbouring sites, and highlights the potential for contamination by old wood. In conclusion Killick (2004: 104) suggests that there is no proof that iron was independently invented in Niger or anywhere in sub-Saharan Africa but nor is there any evidence to suggest that it was introduced from elsewhere. Thus the ultimate origin of iron technology in Great Lakes Africa and Rwanda remains illusive and this is unlikely to change unless detailed ceramic typologies can be developed supported by secure stratigraphic preservation (Killick 2004: 107).

The appearance of roulette-decorated ceramics at the end of the 1st millennium AD, suggested by Van Noten (1983) and Van Grunderbeek (1982) (see discussion section 4.1) in Rwanda has been associated with the identification of a new type of iron furnace and a dramatic rise in the occurrence of iron production waste suggesting an increase in production (Van Noten 1983: 34-35, 62). However, despite the importance of iron production as a dominant social facet during the Kingdom Era, research attention in Rwanda has continued to focus on the origins of iron metallurgy at the beginning of the Early Iron Age at the expense of its development throughout the following 2500 years. This situation is soon to be improved by Jane Humphris' (2008) continuing work in Rwanda that is specifically targeting later furnace remains amongst other issues. Thus, archaeometallurgical studies will not be attempted here.

4.7 Palaeo-Environment

Palaeoenvironmental evidence for Great Lakes Africa and Rwanda comes from fossil pollen (palynology), the biochemical analysis of lake sediments and tracing changes in the volume of river systems (Paleohydrology) (Taylor and Marchant 1994/5: 283-295). The pollen record for this region is good, with a series of cores having been taken from Burundi, Rwanda and western Uganda. One pollen core taken from Rwanda's Kamiranzovu Swamp dates to at least 40,000 BP (Hamilton 1982: 182-3; Jolly et al. 1997; Schoenbrun 1998: 30). However, this particular core is not of use for periods after the last Glacial. For these later Holocene environments, evidence comes from cores taken in southwest Uganda and central Burundi (e.g. Taylor and Marchant 1994/5; Taylor et al. 1999, 2000; Jolly et al 1997: 508).

This pollen data has been used to track the ebb and flow of grasslands and forests and has shown that there was a shift to a drier form of forest around 3250 BP in central Africa around Rwanda, Burundi and western Uganda (Jolly et al. 1997: 508). The next major change in distribution began around 2500 BP with a dramatic reduction in forest size and the appearance of degraded and disturbed soils. Due to the speed of deforestation and correlation with archaeological events such as the beginnings of farming and metalworking it has been attributed to human clearance (Jolly et al. 1997; Taylor et al. 1999). A variety of causes for this clearance have been suggested such as increasing agricultural pressures for land, metallurgical demands for fuel and pastoral concerns regarding parasitic cattle diseases (Van Grunderbeek et al. 1983; Schoenbrun 1998: 32, 75; Taylor et al. 1999).

The early forest clearers appear to have had an initial preference for high altitude environments that Jolly et al. (1997: 511) suggest were preferential because they would have had a lower density of trees, more easily cultivatable soils and a lower incidence of disease. In Rwanda Van Grunderbeek et al. (1983: 8) have used pollen data and fossil wood to produce a map of Rwanda's vegetation zones around 2000 BP. Van Grundebeek et al. (1983: 9) suggest that Rwanda's Early Iron Age vegetation ranged from low wooded savannah in the east to high montane forest at the bottom of the Virunga volcanic chain in the north and west and that whilst vegetation diversity remained stable, the distribution of this vegetation did not. However, more recent palaeoecological evidence produced in neighbouring south west Uganda, at Kigezi Swamp in the Rukiga Highlands, has found that a decrease in taxa began around c.2200 BP (Taylor and Merchant 1994/5).

Jolly et al. (1997) suggest that the next major phase of deforestation in central Africa, including Rwanda, occurred around AD 1000. This event, assumed to be the result of human activity, coincided with a climatic shift that created drier conditions, the development of specialised pastoralism, an increase in iron production, a shift in site distribution and an increase in soil degradation (Jolly et al. 1997: 511). It has been hypothesised that farming activities, alongside forest clearance for fuel for metallurgists and land for grazing, led to soil degradation forcing communities to adopt new subsistence activities such as specialised pastoralism. The drier conditions and versatility of specialised pastoralism may have encouraged communities to experiment and expand into new environments such as the grasslands (Schoenbrun 1998: 100). However, it is also possible that a series of economic specialisations were developing at this time, not as a result of degradation, but as a result of internal political change (Reid 1996, 2004).

Evidence of this drier phase comes from palynology and oral traditions alongside climatic evidence from the Rodah Nilometer, which suggest that there were two dry periods in Great Lakes Africa, AD 950 to AD 1100 and 1200 AD to 1450, that created environmental uncertainty for Late Iron Age communities (Schoenbrun 1998: 230). This dry phase fits with oral traditions that record a drought in the region around this period. However, archaeological and linguistic results suggest that this was not the "great drought" believed by some, such as Tantala (1989 cited in Schoenbrun 1998: 231), who have taken a literal reading of the oral sources, but was actually a period of gradual change with a variety of responses (Schoenbrun 1998: 231; Reid 1991; Robertshaw 1999). The dominance of the 'drought' or 'dry phase' theory must also be questioned as there would have been different consequences, negative and positive, for both drier and wetter phases on the many different ecosystems of Great Lakes Africa and also we cannot reduce radiocarbon variation neatly into a single climatic phase (Reid 1991).

4.8 Site Location

Having summarized the palaeo-environmental data for Rwanda and Great Lakes Africa it is now important to discuss how this relates to site-location in Rwanda and neighbouring areas. Unfortunately, in the absence of any systematic survey in Rwanda the available pattern of site distribution relies upon scattered clusters of sites that are clearly unrepresentative for much of the country. For example much of the evidence for the Early Iron Age distribution comes from the area around Butare in the south that has seen concerted efforts in archaeometallurgical research (Fig. 4.23).

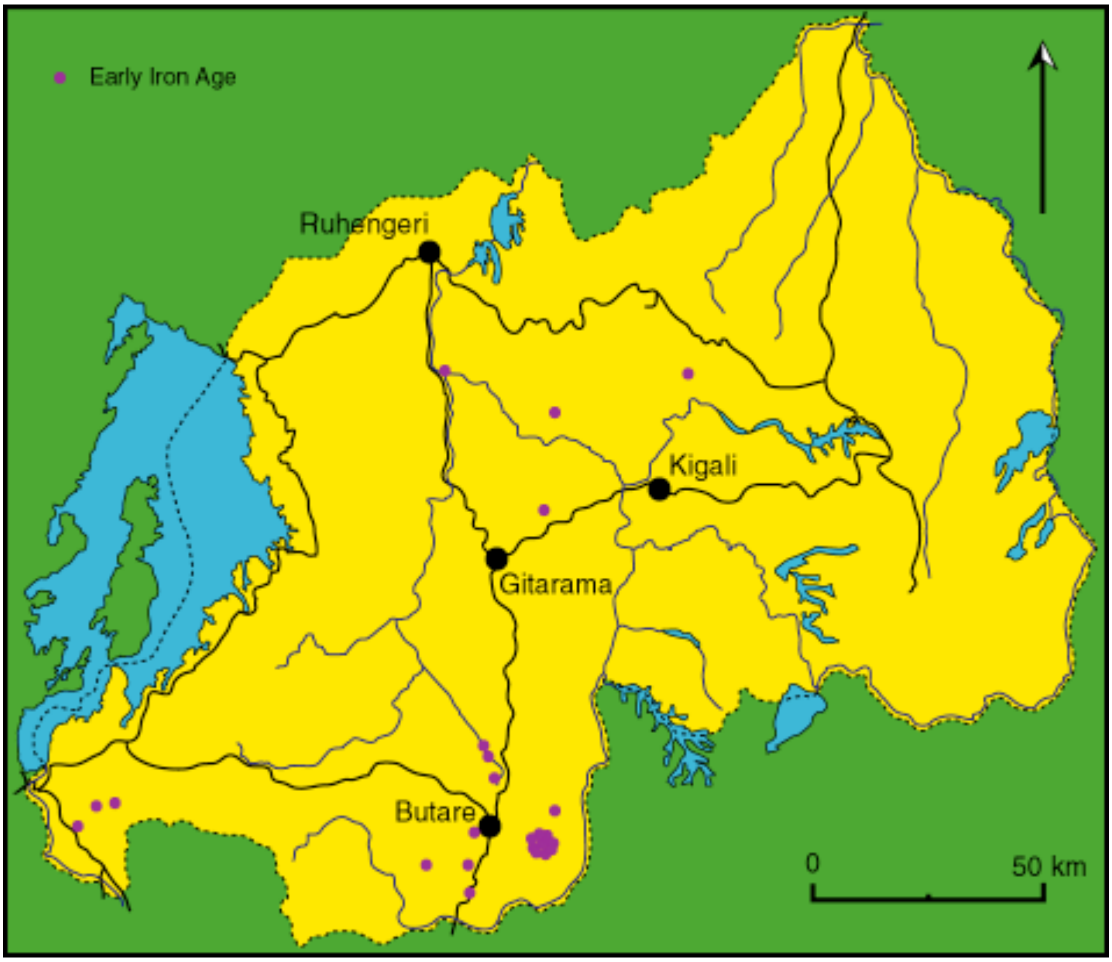

Fig. 4.23 Map showing location of Early Iron Age sites in Rwanda

The available site location evidence suggests that a broadly similar settlement pattern occurred in Rwanda and neighbouring lands during the Early Iron Age. For example, in southern Uganda, Maclean (1994/5, 1996a,b) only recovered Urewe ceramics within low lying, densely vegetated regions with good agricultural soils in rainforest conditions. This is supported by negative evidence from systematic surveys in western Uganda and Tanzania, which suggests that Urewe using populations did not exploit the drier low-lying grasslands (Reid 1990, 1991; Reid and Njau 1994; Robertshaw1994). Comparatively, in the Central Highlands of Rwanda, open sites are only found in forested low montane environments that represent some of the most fertile land in that region (Van Grunderbeek 1982; Van Grunderbeek et al. 1983, 2001; Van Noten 1979, 1983). However, Early Iron Age Urewe users did not only occupy open sites but also exploited caves in Rwanda (see Boutakoff 1937 and

Nenquin 1967a) and in Uganda at Nsongezi Rockshelter (Pearce and Posnansky 1963).

The open site pattern shows a selection preference for well-watered, riverine or lacustrine environments, although, Schmidt's (1997: 412) work in Buhaya, where he found sites located 2km from the nearest water source, demonstrates that sites need not have immediate access to water and could also be situated in the hinterland (Fig. 4.24). Nevertheless the data suggests that similar site location concerns occupied the Early Iron Age inhabitants of this region. Supporting the suggestion that Early Iron Age Urewe users practised a common subsistence strategy. Indicated by their preference for good agricultural soils (Reid 1994/5: 307; Van Grunderbeek et al. 2001: 275). However, the selection of site location was not necessarily stable in the Early Iron Age. For example, Schmidt (1997: 401) records a shift away from the ridges utilised during early settlement in Buhaya towards the more fertile Lake Ikimba region to the west following an onset of more arid condition in the 1st millennium AD.

During the Late Iron Age there was a dramatic shift in site selection. Systematic surveys in southern Uganda suggest that in the 2nd millennium AD people were abandoning their well-watered grounds and were moving into drier grassland environments that were previously uninhabited (Reid 1990; Robertshaw 1994; Schoenbrun 1998: 16). However, this does not appear to have been the case in Rwanda (Fig 4.21). Whilst it is true that site distribution during the Late Iron Age was spread over a wider set of environmental niches including the drier grasslands (although Lugan's 1983 survey of the present day Akageru National Park, a grassland environment produced very few Iron Age results), there is also no abandonment of the earlier well-watered low montane environs (Nenquin 1967a: 258, 273, 284). Unfortunately, as for the Early Iron Age, the current site distribution for the Late Iron Age in Rwanda may not be representative. Currently, many more Early Iron Age sites have been recorded and excavated despite an increase in population size that is believed to have taken place during the Late Iron Age. For example, Vansina (2004: 128-129) suggests that the population within and outside of the Nyiginya Kingdom continued to grow considerably during the 18th and 19th centuries due to increased success in farming and the related benefits that it brought.

Unfortunately, despite the value of an environmental approach to the Iron Age, an investigation into the palaeo-environment of Rwanda and the region is beyond the scope of this research project because it would require facilities, experience and a timeframe not catered for here. Furthermore, the palaeo-environment of western Great Lakes Africa is relatively well known compared to elsewhere. Therefore this research will not be focusing on palaeo-enviromental investigation but will use this model as a framework through which other aspects of Iron Age life can be better understood. However, site location is an accessible and relevant topic for this research. In the absence of any systematic survey in Rwanda the current site location patterning is potentially biased in favour of intensively investigated easily accessible locations close to administrative centres. Therefore, through the implementation of a programme of systematic survey, this research will explore settlement patterning in the Iron Age, a process that will also aid the identification of suitable archaeological resources for the exploration of other research objectives.

4.9 Subsistence

In terms of subsistence, the appearance of agriculture and herding are generally presumed to mark the transition from the Late Stone Age to the Early Iron Age in Great Lakes Africa. However, hunter-gatherer-fisher economies were not totally replaced by farming and have endured into modern times. The beginning of farming in Great Lakes Africa, as with most developments in the 1st millennium BC, has been associated with the arrival of the Bantu language group (e.g. Oliver 1966). However, the farming element of the "Bantu Package" model continues to be questioned by more nuanced studies of Late Stone Age to Early Iron Age archaeology that demonstrate continuity between these periods (e.g. Lane et al. 2007). Yet, despite sustained levels of interest in Great Lakes Africa Early Iron Age subsistence, relatively little tangible evidence is available. This is due in part to poor preservation conditions for archaeological flora and fauna (Young and Thompson 1999; Marshall 2000).

The only direct evidence for the cultivation of domestic crops in Early Iron Age Rwanda comes from sorghum and finger millet pollen found at Kabuye in Butare (Van Grunderbeek et al 1983: 42). However, this evidence has been brought into question due to potential contamination and the small size of the sample (Maclean 1996a: 47; Reid, 1994/5: 305) and despite its defence (Van Grunderbeek 2001: 271; Van Grundebeek and Roche 2005) it remains problematic without further supporting evidence. Indirect evidence for cultivation during the Early Iron Age comes from site distribution and the selection of good agricultural soils (see discussion above section 4.8). Linguistic studies suggest that root cropping was already known by proto-Bantu speakers and that Early Iron Age Bantu speakers, reliant on forest crops such as yams, would have been introduced to sorghum, millet and bean crops through contact with other language groups (Schoenbrun 1993, 1994/5, 1998: 110).

Direct evidence of animal husbandry in Early Iron Age Rwanda comes from only two sites, Kabuye and Remera, where cattle teeth have been found (Van Grunderbeek 1981; Van Grunderbeek et al. 2001: 273-275). Although the identification of these teeth and their association with the archaeology has been questioned (Reid 1994/5), the sparse archaeological evidence has again been supported by linguistic data that suggests Bantu speakers, who occupied this region at this time, had a limited knowledge of stock keeping during the Early Iron Age (Ehret 1998: 133; Schoenbrun 1993: 19-20).

The presence of hunter-gatherer-fisher subsistence during the Early Iron Age in Rwanda has been taken for granted and thus overlooked in favour of the appearance of new modes of subsistence such as herding and cultivation. This has been compounded by poor region wide preservation conditions (Marshall 2000). Indirect evidence for the exploitation of wild animals in Early Iron Age Rwanda comes from locations such as rock-shelters and caves (e.g. Ruhimangyargya, Mukinanira and Kamboza) (Van Noten 1983). However, linguistic evidence again allows for a richer appreciation of foraging in the Early Iron Age. Schoenbrun (1998: 24) has found evidence that foragers were exploiting forests to collect medicine in the form of leaves, roots and bark, lumber, wild game and plants (yams, tubers, fruits, seeds and edible leaves) and insect foods and they used spears, bows and arrows, and net and pit traps to catch animals for their protein and skins (Schoenbrun 1998: 24). Linguistic evidence for foraging suggests that there was a complicated process of regional specialisation with local settlement preferences and that the history of hunter-gatherers, “was not just a shapeless mass of peoples’ comings and goings helpless before the vagaries of the environment.” (Schoenbrun 1998: 67)

During the Late Iron Age specialised pastoralism and agriculture appeared in Great Lakes Africa. However, archaeological understanding of Late Iron Age subsistence in Rwanda is extremely limited and popular 20th century presentations owe more to ethnographic analogy and disputed oral histories than tangible evidence (discussed in Chapter 2 section 2.4) Archaeologically, much more is known about farming economies from neighbouring countries. For example, early in the second millennium AD grassland sites such as Ntusi appeared in southern Uganda. These sites are characterised by a strong pastoral element alongside agricultural remains. At Ntusi 80-90% of all faunal remains were cattle (Reid 1996: 623) and these were found alongside indirect evidence for agriculture that included grindstones, ceramic abrasion patterns (Reid and Young 2000), grain harvesting knives and deep storage pits (Reid 1991).

Evidence of foraging from the beginning of the Late Iron Age in Rwanda comes from two Musanze caves in northern Rwanda, Cyinkomane and Akameru (Van Noten 1983: 34-35; Gautier 1983: 104-120). Evidence from these caves show that whilst the occupants were exploiting wild animal resources in the local environment they also had access to resources associated with farming, such as domestic stock, including chickens, cattle, sheep and goats (Gautier 1983: 118) and roulette-decorated ceramics (Van Noten 1983: 34-25). These remains can be compared and contrasted with the faunal remains from the Iron Age deposits at Matupi Cave, in north-eastern DRC (Fig. 4.24) (Van Neer 1984). Matupi cave is comparable because during the Iron Age it was located in equatorial forest, a similar environment in which the Musanze caves would have been situated until recently (although the Musanze caves were located close to the periphery of the equatorial rainforest environment through much of the Late Iron Age) (Vansina 2004: 50, 124, 153, 178, 179). At Matupi, Van Noten (1977) excavated a Late Iron Age deposit, dated to c.1200 AD, overlying a Late Stone Age deposit. The faunal remains from both deposits consisted entirely of wild remains with no evidence of domestic species present (Van Neer 1984: 62). These examples demonstrate that the populations living within the equatorial rainforest during the Late Iron Age cannot be assumed to fit a single homogenous mode of subsistence but need to be approached and appreciated through locally scaled studies.

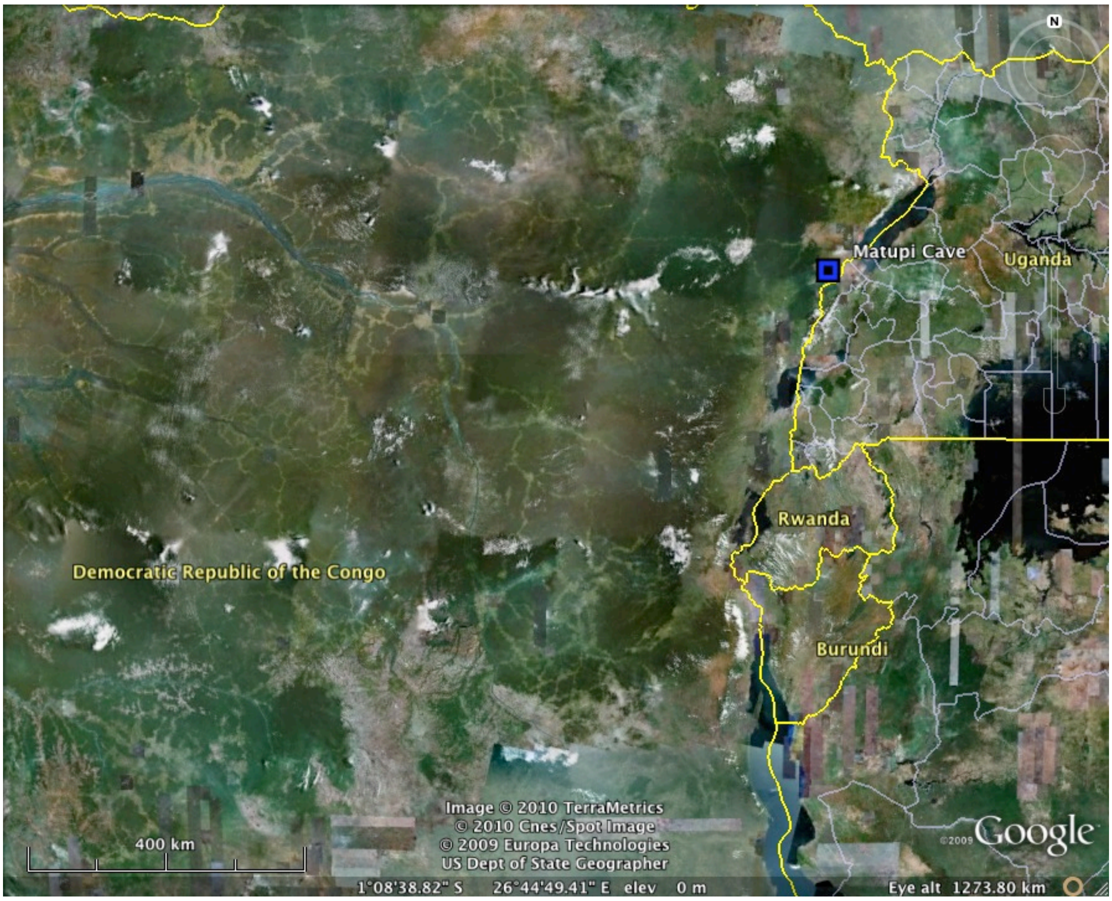

Fig. 4.24 Satellite image showing location of Matupi Cave , DRC

Further subsistence evidence from the Late Iron Age in Rwanda comes from the 18th century Ndorwa kingdom capital site, Ryamurari. At Ryamurari Tshihiluka (1983: 153) found direct evidence of the consumption of pastoral products through the identification of cattle bones, and indirect evidence of the consumption of agricultural products through the identification of grain grinding stones. However, no wild remains, with the exception of rabbit bones, were identified. Whilst the pastoral evidence fits with the oral traditions that record Ndorwa as a kingdom built on cattle wealth it makes a contribution by demonstrating that agricultural produce was also present at the heart of the kingdom.

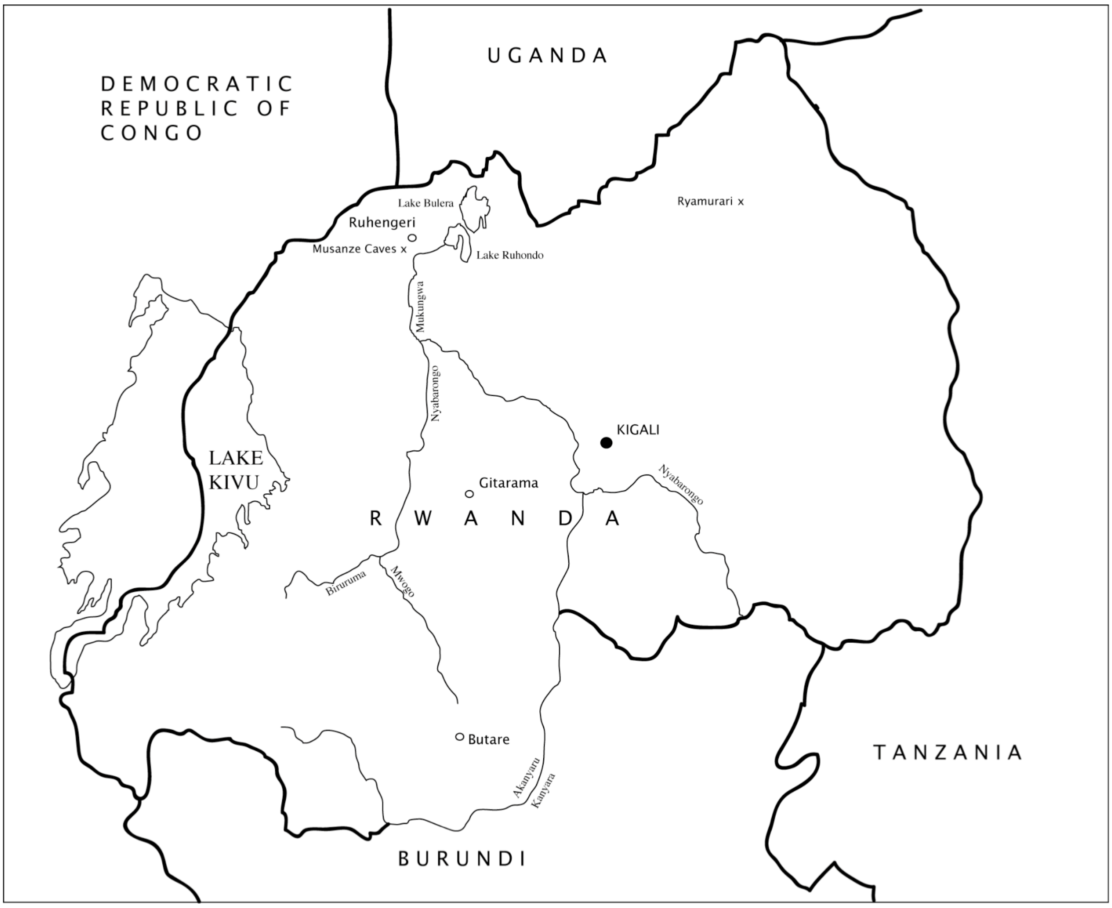

Fig. 4.25 Map showing location of Ryamurari and Musanze Caves in northern Rwanda

This summary has highlighted the need for more work on subsistence practices in Rwanda during the Iron Age because currently the evidence is confined to isolated finds and assumptions based on linguistics, site location and migration models. Whilst more evidence exists for subsistence during the Late Iron Age this is confined to two sites, the Musanze Caves and Ryamurari (Fig. 4.25). Nothing is known of open non-capital sites and the cave evidence raises more questions than it answers. For example, what explanations can be given for the occurrence of a mixed wild and domesticated faunal assemblage at Cyinkomane and Akameru? Gautier (1983: 118) suggests the cave occupants were pastoralists who used these locations as refuges utilising wild species whilst they were there. However, this argument is solely based on the percentage of wild to domestic species in two small test-excavation units, and thus remains speculative.

Subsistence orientation during the Late Iron Age in Rwanda is also of considerable recent political relevance because much has been assumed about the relationship between ethnicity and subsistence (see Chapters 2 and 3). Therefore Rwandan Iron Age subsistence will be selected as a major research theme in this study. This thesis will seek to make an empirical contribution to subsistence studies through the identification and dating of subsistence remains. Furthermore, it will directly target archaeological deposits in the Musanze Caves to develop understanding of the relationship between farmers and foragers during the Iron Age.

Based on this discussion and the historical and theoretical frameworks set out in Chapters 2 and 3, it will ask specifically:

1. What evidence is there for an economic subsistence trichotomy between forager, agriculturalist and pastoralist in the Rwandan Iron Age?

And where this null hypothesis is not supported:

2. What was the nature of forager-farmer relations in the Rwandan Iron Age?

Whilst the relationship between farming and foraging communities has not been explored previously in Rwanda, it has been elsewhere in Great Lakes Africa and most notably in Southern Africa. Therefore, because this will become a major research focus in this thesis examples from these two regions will be briefly reviewed here.

Forager-Farmer Relations in Great Lakes Africa

Lane et al. (2007) have explored the transition from Late Stone Age hunter-gatherer subsistence to Iron Age farming at two sites on the eastern edge of Lake Victoria in Kenya, Wadh Lang'o and Usenge 3. They questioned the assumption that where Bantu-speaking farmers encountered hunter-gatherer lifestyles they replaced these and instead suggest that long-term interactions with regional variations took place between 1500BC and AD500. At Wadh Lang'o in Western Kenya a series of Stone Age, Pastoral Neolithic (approximately 3300 to 1300 BP for Elmenteitan ceramics), Iron Age and Historic, archaeological deposits containing ceramic faunal material were encountered. Lane et al. (2007: 70) found mixed wild/domesticate faunal assemblages containing sheep or goats (*Ovis*/*Capra*) within the Late Stone Age, Pastoral Neolithic and Iron Age deposits. Whilst the percentage of domesticates to wild species decreased during the Iron Age, based on body part representation and age profiles, Lane et al. (2007: 70) suggest there is some continuity in herd management. However, nearby at Usenge 3 faunal assemblages were almost entirely dominated by hunted and fished remains, although rare sheep/goat remains were identified in both the Late Stone Age (Kansyore) and Early Iron Age deposits and cattle were present in the Early Iron Age deposits (Lane et al. 2007: 74). Lane et al (2007: 75) concluded that the Usenge 3 faunal assemblage was created by specialised hunters and was not made by a society primarily involved in farming. The ceramic assemblage also suggested that this was primarily a hunting community. Whilst the Iron Age ceramics from Usenge 3 were comparable with and contemporary to Classic Urewe, they were subtly different and were termed "Contact Urewe" (described in section 4.4, Fig. 4.7 this chapter).

Forager-Farmer Relations in Southern Africa

In Southern Africa the appearance of farming in the early first millennium AD has also been associated with the arrival of the "Bantu Package" (Oliver 1966). In this region the first farmers combined cereal grain agriculture and stock keeping. They grew a range of crops including grains such as Pearl millet (*Pennisetum americanum),* finger millet (*Eleusine coracana)* and Sorghum (*Sorghum bicolor*) and pulses including Bambara groundnuts, (*Voandzeia subterranea*) and cowpeas, (*Vigna sinensis*) (Maggs and Ward 1984; Huffman 1974 cited by Mitchell 2002: 275). Domestic animal species exploited include cattle, sheep and goats (e.g. Plug 1979: 123; Plug and Engela 1992: 19; Sadr and Plug 2001: 1, 4, 8). Wild remains are also found but their relationship with the farming communities is not always clear. Whilst farmers may have taken part in hunting directly they may also have received their meat indirectly through trade with hunter-gatherers (Mitchell 2002: 275-276). Hunter-gatherers did not disappear at the end of the Late Stone Age but persisted into and throughout the Iron Age. Thus as Mitchell (2002: 292) points out farming did not expand into a vacuum but would have had to co-exist and develop alongside foraging (e.g. Thorp 1996: 57-63). Maggs (1980: 11) suggests that in the Thukela Basin farmers produced metal to trade with hunter-gatherers whilst flaked stone tools, bone points and ostrich eggshell beads at farming sites may represent materials moving in the opposite direction. Mazel (1989b: 4-7) suggests that these finds are only a few elements of a much larger mutually supportive, integrated exchange system. Other studies have focused on the possibility of how contact with farmers may have affected hunter-gatherer populations and changed social dynamics for example in gender roles and production through inter-marriage and exchange ties (Mazel 1989a Wadley 1996: 1-2, 11).

The Kalahari Debate

A relevant case study for this research from Southern Africa is the "Kalahari Debate" (e.g. Reid 2005). A stereotypical view of Kalahari populations continues to be presented in popular culture and to some extent in academia. This stereotype suggests that these populations have lived a hunter-gatherer lifestyle unchanged in the Kalahari for thousands of years and therefore present a pristine image of Stone Age society. However, this stereotype is based on assumptions about the archaeological past but without archaeological evidence to support them (Reid 2005: 353).

This stereotype has been challenged by the Revisionist School (e.g. Wilmsen and Debow 1990) who, through their analysis of the Kalahari population's political economy, suggested that hunter-gatherer societies were not isolated by absence of contact but were marginalized by political processes taking place in the broader region over many centuries. This theory was in opposition to the established stereotyped view and arguments between the two positions were termed the "Kalahari Debate" (e.g. Lee and Guenther 1991; Solway and Lee 1990; Wilmsen 1993; Wilmsen and Denbow 1990). The Revisionist School undermined the use of the Kalahari peoples in comparative anthropology and social evolutionary studies by emphasising the need to investigate the historical perspectives of these populations (Wilmsen 1989). For example, archaeological research has shown that the margins of the Kalahari have been populated for a long time. Denbow (1984) documented hundreds of Toutswe and other sites with a pastoral element on the eastern edge of the Kalahari dating to between AD 900 and 1300 suggesting that there was a high potential for contact between the Kalahari hunter-gatherer populations and other subsistence systems. However, critics of the Revisionist School (e.g. Kent 1998: 16) suggest that the identification of a few exotic items does not mean the Kalahari societies had forsaken their own ways of life and been dominated by a farmer society. Furthermore, critics suggested that the revisionist model merely replaced the isolationist model with an encapsulation model and failed to investigate potential complex interactions between these communities and the choice of hunters to remain hunters. For example, Smith and Lee (1997) identified communities apparently untouched by agricultural production, suggesting that a variety of different experiences could be recognised.

Another criticism of the Revisionist school is that it ignores actively negotiated interactions between the Kalahari populations and the margins over the past 2000 years that archaeologists such as (Reid 2005: 364) suggest are likely to have happened. For example, Reid and Segobye (2000), through an archaeological and oral historical study in the Mosu area of Botswana, found evidence of farming communities living in close proximity to hunter-gatherer communities and teaching them farming and livestock-keeping, in exchange for knowledge of the local environment. Reid also found that whilst hunter-gather populations could shift to farming, it was also possible for farming populations to shift to a hunter-gatherer subsistence economy (Reid 2005: 366).

These examples serve to demonstrate that the adoption of farming and the relationship between farmers and hunter-gatherer communities was not a simple one. As Lane et al. (2007: 78) suggests the transition to farming could be a "complex, fluctuating and perhaps incomplete, process". There is no universal model, instead subsistence relations need to be understood as historically situated localised phenomena and thus no universal homogenous model exists, further supporting an archaeological investigation of subsistence in the Rwandan Iron Age instead of relying on simplistic ethnographic analogies.

4.10 Social Organisation

The archaeological evidence for socio-political organisation in Great Lakes Africa during the Early Iron Age is very sparse. Evidence of domestic space in Rwanda comes from one site, Mirama II, where Van Grunderbeek (1981) found a moulded mud hearth. Potential evidence for individual houses from the wider region comes from only three other sites: in southern Uganda (Maclean 1996a: 71), northwest Tanzania (Schmidt and Childs 1985: 65) and in eastern Democratic Republic of Congo (Van Noten 1979: 69). However, this evidence is not conclusive and thus it is impossible at this stage to talk of the "Urewe house" or "Urewe settlement" (Reid 1994/5: 304).

Despite the paucity of evidence Van Grunderbeek et al. (1983: 43-44) have proposed a model of socio-political organisation for Early Iron Age Rwanda based on palaeoenvironmental and site location data. They suggest communities were dispersed, separated by marshes and rivers that snaked between the hills of the low montane environment and that these communities were made up of individuals engaged in subsistence activities alongside metallurgy, pottery and charcoal production. Whilst this is a useful summary of the available evidence it does not take us beyond a description of the extant empirical evidence. Schmidt (1997: 400, 403, 411, 417-418) has proposed a more ambitious complex model of socio-political organisation for northwest Tanzania. Schmidt suggests that increasing complexity in iron technology led to increasing social complexity and describes how Urewe users with low-density incipient metallurgical skills occupied dispersed settlements until c.200 AD. During the following 200 years he suggests that social groups consolidated, stimulating the development of social ranking based on access to technological resources. Finally, beyond this time, Schmidt (1997: 401) suggests that standardised technological production at "factory sites" occurred leading to social centralisation and emergent complexity. Clearly then, Schmidt's (1997) and Van Grunderbeek et al.'s (1983) model differ considerably and are not without their problems. For example (Reid 1994/5: 306) has suggested that iron furnace remains are not necessarily evidence of continued concentrated activity but may be the remains of single use furnaces, which, if that were the case, would reduce the evidence for technological intensification that Schmidt proposes. However, Urewe is a region wide phenomenon and it is entirely possible, and indeed likely, that a range of socio-political structures existed in the 1st millennium AD. Thus, promoting the potential for variability and difference during this period and warning against the imposition of generalised, homogenising models.

Whilst the Early Iron Age has been characterised as a period consisting of various groups of homogenous small scale farming communities, during the Late Iron Age a processes of fragmentation took place that saw the rise of various states and kingdoms in the 16th and 17th century. Direct socio-political evidence from the beginning of the Late Iron Age in Rwanda has not yet been identified. Thus, evidence has been sought from more intensively investigated neighbouring regions. For example, early 2nd millennium AD grassland sites such as Ntusi and Munsa from Uganda present a picture of growing centralised authority and organisation supported by a new agro-pastoral economy (Reid 1991; Robertshaw 1997). These sites went into decline around the 15th century (Reid 1996) and were followed by sites such as Bigo with major earthworks implying even greater levels of social cohesion than previously seen (Sutton 1998).

By the beginning of the 18th century these grassland sites, but not the region, had been abandoned and new political formations were developing into the Late Iron Age kingdoms of the Great Lakes such as Rwanda (the Nyginya Kingdom), Buganda, Bunyoro, Karagwe, Nkore and Ndorwa (Vansina 2004: 111). Yet, despite detailed historical knowledge from the oral traditions that identify the location of many of the capital sites, due both to their impermanence and to subsequent agricultural disturbance, few remains can be found. One exception is Ryamurari (Fig. 4.25), an eighteenth century capital of Ndorwa, a cattle and grain producing state in the north east of Rwanda, where some preserved archaeological features remain (Tshihiluka 1983: 152) (already discussed in section 4.9). At Ryamurari Tshihiluka identified eighteen enclosures associated with large cattle kraals and domestic spaces. There was considerable labour investment at Ryamurari attested by the presence of large earthworks, 1.5-2.5m high, around some of the kraals and by the large deep-water collection features carved into the granite outcrops (Tshihiluka 1983: 149). The organisation necessary to produce these works and the disproportionate investment of labour at some of the enclosures suggests a centralised authority existed with clear power inequalities within society, as would be expected at a kingdom capital site. However, whilst Ryamurari is an important example of a Great Lakes Africa capital site it is unrepresentative for the majority of Rwanda at this time that was not ruled by Ndorwa but instead by the Nyiginya Dynasty.

Burials

Burials are a potential window into Iron Age society because they represent deliberate deposition of human remains often alongside grave goods. This culturally significant act and its associated artefacts can be used to infer the concerns of the living populations who deposited them. However, no Early Iron Age graves have been identified in Rwanda and the only Urewe burial excavated so far in the western Lakes region is in Tongo, northern Kivu, DRC (Fig. 4.27) (Misago and Shumbusho 1992: 70). The Tongo burial one complete child skeleton lying above an adult skeleton, which was wearing two iron rings and was lying alongside Urewe ceramics in a cavity cut into natural limestone. Unfortunately, this site was only identified after it had been badly damaged by road works and has only been dated by its association with Urewe ceramics, no radiocarbon dates have been taken and it has only briefly been published. Sixty other skeletons were encountered and goods identified including: whole pots, iron rings, shell pearls and animal tooth pendants. However these were all uncovered during the road works and were not archaeologically excavated (Misago and Shumbusho 1992: 70).

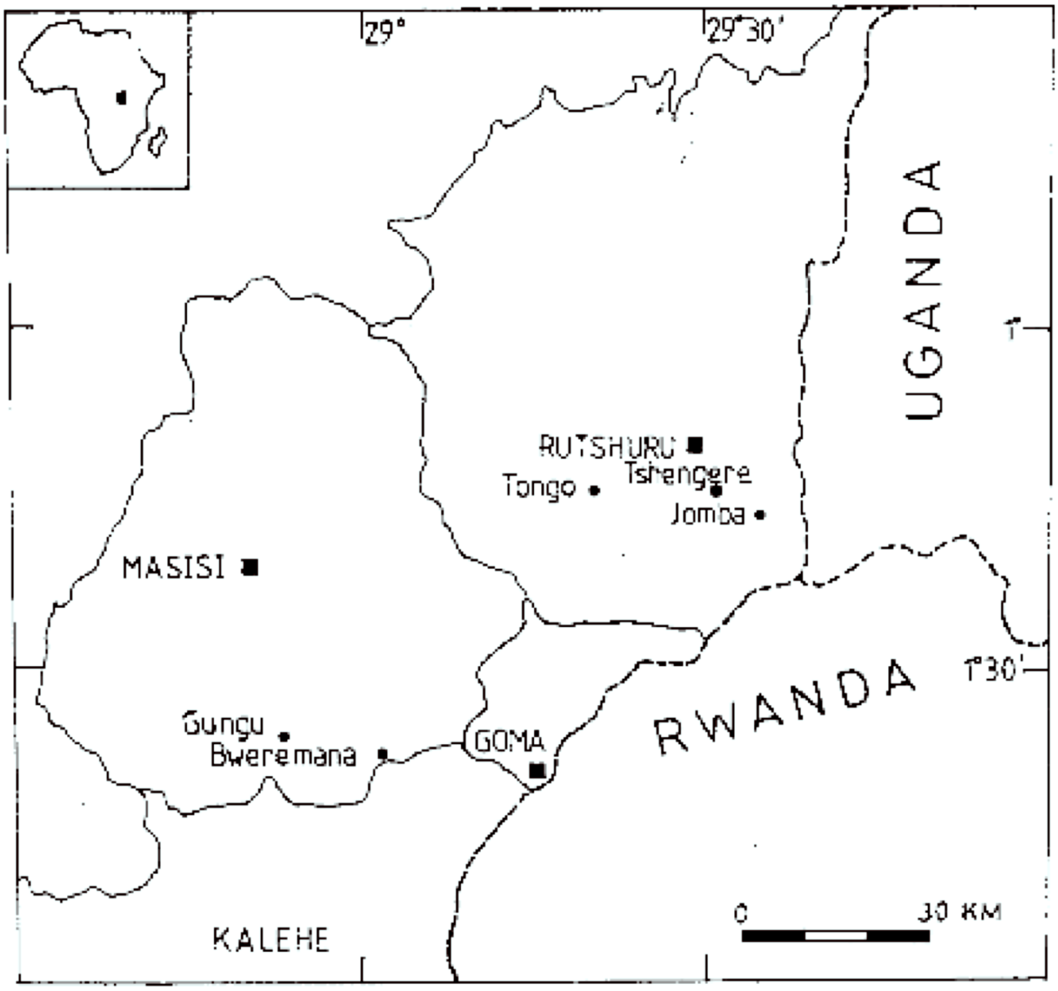

Fig. 4.26 Map showing location of Tongo and other archaeological sites in eastern DRC (reproduced from Misago and Shumbusho 1992: 69,Fig. 2)

Later burials are known from neighbouring areas such as the necropolis at Sanga in the Upemba depression in southeast DRC (Fig. 4.27), excavated for the first time by Nenquin (1963), and subsequently by Hiernaux (1971) and de Maret (1977). At Sanga a series of graves (e.g. Fig. 4.28) were excavated and found to have dates ranging from the 8th century to the 15th century AD (de Maret et al. 1977: 488). These graves contained both adult and child skeletons and were associated with Kisalian and Kabambian ceramics amongst other finds, that have similarities with Urewe but are more closely related to ceramics to the south in Zambia (discussed in more detail in Chapter 9 section 9. 10).

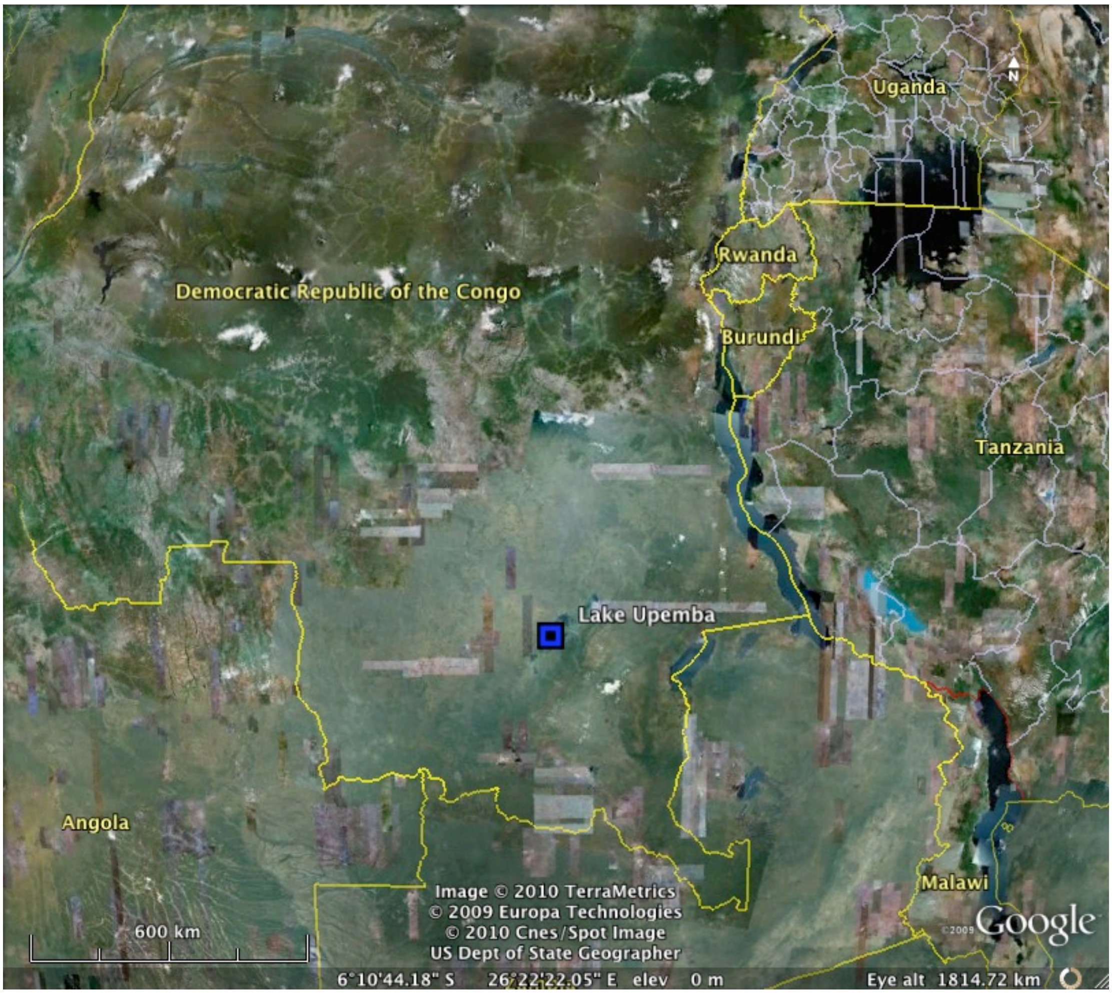

Fig. 4.27 Satellite image showing the location of Lake Upemba in the Upemba depression, DRC.

Fig. 4.28 Photograph showing Classic Kisalian grave, 172, from Sanga (reproduced from de Maret 1977: Plate 1)

Late Iron Age burials have been identified in Rwanda. For example at Ruli a collective grave containing "B-Ware" ceramics was excavated (Hiernaux and Maquet 1960; Nenquin 1967a: 278). Other tentative evidence regarding socio-political organisation in Late Iron Age Rwanda comes from the royal graves of Cyirima Rujugira, Kigeri Rwabugiri and Reine-mere Nyirayuhi Kanjogera excavated by Van Noten (1972, 1983). Whilst the latter represent the graves of late 19th – early 20th century rulers Cyirima's grave has relevance with much earlier times, revealing Late Iron Age socio-political concerns. Cyirima died in the 17th century but he was not buried due to traditional laws regarding succession that were unfulfilled because the following king dieing too early for them to be completed. Thus Cyirima's body, and all the grave goods that were to be buried with him, were kept in a royal hut until the early 20th century when the colonial administration decided to bury him in 1931.

Cyirima was buried with all of his 17th century burial offerings but was excavated by Van Noten in 1969 under the post-independent government, which was less sympathetic to the previous ruling dynasty. Van Noten's (1972, 1983) excavations revealed a wealth of grave goods including ceramics, iron objects and worked bone ornaments (Fig. 4.29). Of significance here is the presence of objects associated with hunting, pastoralism, agriculture and metal work, including projectile points, such as arrow and spear heads, hoe blades, billhooks and hammer anvils. Whilst the arrangement of the goods may be questioned as they were interred in the 20th century, elements of the composition of the assemblage are believed to be 17th century based on radiocarbon dates (de Maret 1977). These goods suggest that the Nyiginya Kingdom in Rwanda at this period was founded on a range of economic activities, which the ruling dynasty stressed through physical association with symbolically important items within the royal grave.

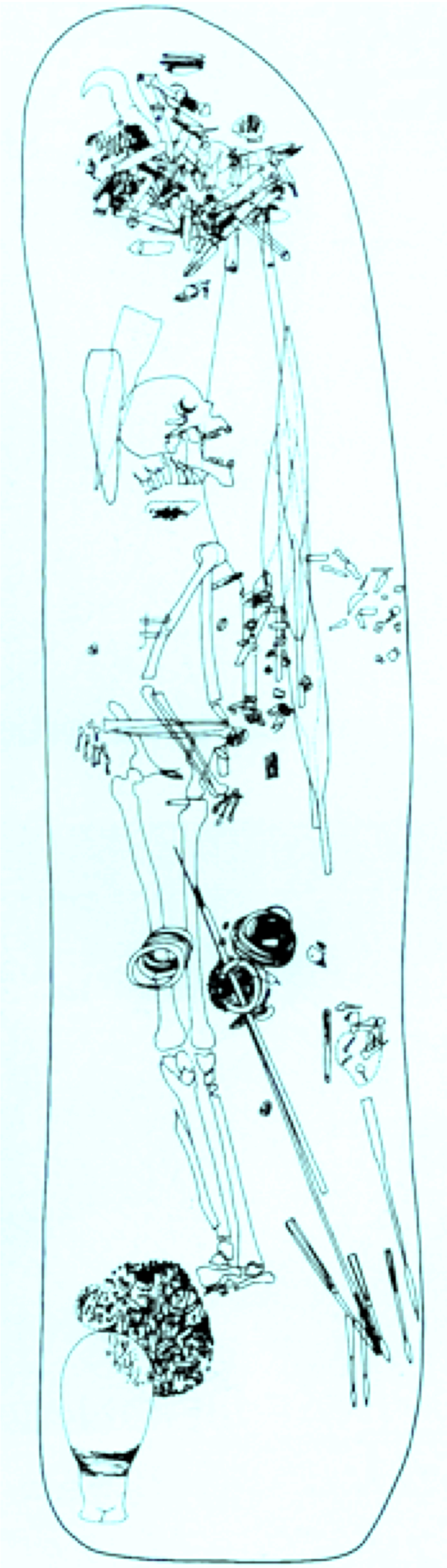

Fig. 4.29. Illustration showing grave plan of Cyirima Rujugira (reproduced from Van Noten 1983: Plate 50).

Clearly our understanding of socio-political organisation in Rwanda during much of the Iron Age is inadequate and where we have detail, such as for the Kingdom Era this evidence comes largely from oral traditions, which are problematic sources of evidence in this context (for a detailed discussion of these problems see Chapter 2 sections 2.3). Therefore this subject has been identified as a prime research concern and where identified evidence such as settlement layouts, living floors and burials, these will be a focus of this thesis.

4.11 Research Questions Compiled

This chapter has summarized the central themes in Great Lakes Africa Iron Age studies with specific focus on Rwanda. Through this discussion a series of pertinent and practical research themes, and related research questions, have been identified including:

Dating:

- What was happening in Rwanda between AD 800 and 1100?

Ceramics:

- Is Urewe in Rwanda a homogenous ceramic type or can socially meaningful variation be identified within it?
- What happened to Urewe at the end of the Early Iron Age?
- Are the very early dates for roulette-decorated ceramics in Rwanda supported by new research?
- Can socially meaningful variation be identified within Rwandan roulette-decorated ceramics?

Site Location

- Is the current settlement model in Rwanda for the Early and Late Iron Age supported by systematic survey?
- Is there a shift in site location preference between the Early Iron Age and the Late Iron Age?

Subsistence:

- What evidence is there for an economic trichotomy between forager, agriculturalist and pastoralist in the Rwandan Iron Age?

And where this null hypothesis is not supported:

- What can we say archaeologically about forager–farmer relations in the Rwandan Iron Age?

The following chapter (5) presents an appropriate methodology through which these themes and questions have been addressed archaeologically.

Chapter Five

Methodology

The research questions identified in Chapter 4 will be tackled through the identification, analysis and interpretation of three overlapping core archaeological data sets: site distribution, archaeological ceramics and subsistence remains.

It is important here to re-iterate the key aims of this research that relate to the development of an effective methodology:

- To identify new archaeological resources
- To collect archaeological samples from these and extant resources
- To examine continuity and variation within these archaeological resources
- To compare regional archaeological patterns
- To explore non-ethno-racial pasts within the generated data

The success of this methodology will be constrained by the availability, preservation, ease of collection, and interpretative potential of the identified archaeological resources within the time limit of a PhD framework.

5.1 Designing a Methodology

It was necessary to respond to the aims and concerns set out above by developing an integrated methodological approach that followed key **design criteria** outlined below:

Pragmatism: A methodology was required that could deal with the collection and processing of data in a sensible and realistic way that was based on practicality alongside theoretical ideals. There has been little or no archaeological research in Rwanda for the past twenty years and the country is still undergoing reconstruction following the genocide and civil war. Furthermore, this research was undertaken in locales where the extant archaeological resources were unknown, and this research had to be conducted within the time limitations of a PhD framework.

Maximisation: Directly related to pragmatism, maximisation strategies involved balancing the aims and objectives of the research against the constraints mentioned above. Thus the major variables for each analytical stage were reviewed and the most useful were prioritised at the expense of the least applicable. This hierarchical approach was also adopted in relation to samples and specimens during analysis. Thus, whilst all samples and specimens received basic analysis, the samples and specimens with the greatest potential for preserving evidence relevant to the research questions were separated and received more detailed analysis. It is believed that these strategies enabled the available time to be invested in a targeted and efficient manner.

Holistic: Following the brief discussion of the importance of the *chaîne opératoire* approach in studies of technology (see Chapter 3 section 3.6), and in response to the research objective of investigating continuity and variation, this research methodology adopted a holistic approach to analyses, most notable in the ceramic studies, seeking to analyse as many relevant analytical variables as possible within the time constraints of a PhD framework.

Consistency: This research had the potential to generate large quantities of site location data, archaeological ceramics and zooarchaeological specimens, and to a lesser degree palaeobotanical remains from a variety of sites. Therefore it was essential that a single and systematic analytical methodology be developed for each stage of analysis that allowed the results from each context and site to be compared. Thus a level of standardisation, quantification and overall consistency was required throughout the research. In response all records were recorded on standardised forms, with a focus on a wide range of quantifiable categories with the option of additional qualitative notes.

Following the re-assertion of the research aims and limitations, and the identification of the design criteria, this chapter will now describe the methodology employed in response to these issues, that tackled the identification of archaeological resources and the subsequent ceramic, zooarchaeological and palaeobotanic analysis.

5.2 Identification and Collection

A suitable methodology was required that was capable of identifying new archaeological resources, and re-locating known ones, that contained ceramics, and faunal and floral remains, in a variety of regions. With regard to these requirements, and based on a preliminary assessment of the specific limitations and possibilities afforded in Rwanda a regional survey strategy was chosen.

Archaeological survey is a broad category and can include a variety of techniques ranging from literature reviews (to identify known resources), to field walking (to identify previously unknown surficial resources), and to test-unit excavation (to identify sub-surface remains). However, whilst a wide range of survey techniques exist not all are suitable for every research project and therefore they should be applied selectively.

Fig. 5.1 summarizes and assesses a range of survey techniques, their practical application and their interpretative value in relation to this research:

Strategy	Technique	Description	Advantages	Disadvantages	Priority
Desk-Top Survey	Literature Survey	Surveying published material and unpublished site archives.	Inexpensive, non-time consuming. It can confidently identify known archaeological resources and can help target pedestrian survey for the identification of new resources.	There has been a research hiatus in Rwanda thus published sources are limited. There is much *terra incognita* in Rwanda and thus whole areas cannot be considered by this technique.	**High:** Inexpensive, non-time consuming and complimentary to pedestrian survey.
	Cartographic Survey	Map survey, linked to opportunistic survey, but also using place names to identify potential areas of past settlement and activity.	Inexpensive, non-time-consuming and can compliment pedestrian survey by targeting specific areas.	Requires detailed cartographic sources and is problematic in Rwanda where place names have been changed under different modern political regimes.	**Medium:** Inexpensive and non-time consuming but low chance of success due to changes in place names.
Pedestrian Survey	Transect Survey	Walking along parallel lines transecting the landscape.	Inexpensive, requires minimal equipment and can identify ephemeral surface features in a systematic manner.	It is time consuming, labour intensive and is subject to many subtle biases including visibility of surface remains, surface coverage, geographic	**High:** Based on ease of application, the potential for statistical comparison and a high probability of resource identification.

				obstacles and surveyor competence.	
	Opportunistic Survey	Visiting locations with a high probability of past human settlement such as plateaus, riverbanks and caves.	Includes sites that may be overlooked by transect survey thus maximising the potential for data recovery.	Non-systematic and thus heavily biased method.	**High:** Compliments transect survey, ease of application, inexpensive and maximises the potential for the recovery of suitable archaeological resources.
	Interview Survey	Collecting local knowledge about extant archaeological resources in the surrounding landscape.	Includes sites that may be overlooked by transect and opportunistic survey, is inexpensive and can inform on non-archaeologically identifiable resources such as beliefs and local experience.	Non-systematic and is thus heavily biased. Low success rate as different informant-leads are followed up.	**High:** Inexpensive, complimentary and involves local community.
Remote Sensing	Aerial Survey	Including aerial photography, thermography and radar imagery.	Can see subtle surficial archaeological remains especially large scale horizontal features with low vertical scales. Large-scale coverage of the landscape.	Resource not available in sufficient detail for Rwanda and would be extremely expensive to establish. It is not appropriate for the identification of ephemeral sites and the existence of large-scale horizontal archaeological features across Rwanda has not been established.	**Low:** Expensive, potentially time consuming, low interpretative value in Rwanda where sites are more commonly identified as small scale ephemeral features.
	Instrument Anomaly Survey	Including magnetrometery, resistivity and ground penetrating radar.	Non-invasive detection of archaeological features and deposits especially useful for identifying contents and limits of known archaeological resources.	Expensive, equipment is not available in Rwanda and must be imported. Limited interpretative values in regional surveys as scale of anomalies are small. Anomaly baseline for site versus	**Low:** Expensive, not applicable to regional surveys and comparative and control studies are unavailable in Rwanda.

				non-site in Rwanda not established.	
Subsurface Survey	Shovel Test-Pit Survey	Excavation of small test-pits with a shovel at regular intervals usually along a transect survey line.	Complimentary with transect and other forms of pedestrian survey. Allows an understanding of the upper sub-surface deposits of a site.	Time consuming and is difficult to co-ordinate with a transect survey team. Also is often limited to upper deposits and may lead to an under appreciation of sites with deeper deposits.	**Medium:** Very time consuming and with limited interpretative value as identified sites must still be returned to for further excavation.
	Close Interval Core-Sampling	Taking cores systematically across an area to identify the presence of soil staining that may be related to the presence of archaeological features.	Inexpensive, effective and relatively quick for preliminary assessment of deposits across known archaeological resources.	Unsuitable for regional survey as cores must be taken intensively and the existence of stained soils in not sufficient to identify a site.	**Low:** Not appropriate for regional survey.
	Test-Unit Excavation Survey	Full and detailed excavation of test-units, typically 1x1m or 2x2m, at sites already identified through another survey strategy.	Allows for the detailed investigation of sub-surface archaeological resources at targeted sites and the collection of a range of archaeological samples.	Time consuming, labour intensive and expensive, thus restricting the number of sites that it can be applied at.	**High:** Based on the potential for the recovery of stratified archaeological samples.

Fig. 5.1 Table showing survey methods

Based on the results of this review, a number of techniques were prioritised whilst others were ruled out (the selected techniques will be discussed in more detail in the next section). For example, desktop and pedestrian survey strategies were high priorities because they have been proven to be effective in Great Lakes Africa (e.g. Reid 2002), are inexpensive and can be readily applied in Rwanda. However, remote sensing survey was not conducted during this research because it is expensive and the equipment is not readily available in Rwanda. Other techniques, such as close interval-core survey were ruled out because they are unsuitable for regional survey, or are too time consuming, as is the case with shovel-test pit survey. Rwanda is densely populated and whilst permission may be sought relatively quickly to cross an individual's land, permission to dig even small holes there may take much longer and involve remuneration and negotiations that would have drastically reduced the potential land coverage of the survey.

The aims and objectives of this research necessitated an initial focus on the identification of new archaeological sites. Therefore, before continuing to describe the site identification strategy it is important to first define what constitutes an archaeological site within this research context, because the 'archaeological site' is an abstract concept with multiple definitions, that vary depending on each individual research project (Hall 1996: 12). For example, at one extreme a single artefact may constitute a site, whilst at the other end of the spectrum the term may refer to the remains of a town or city. For this research it was decided that single artefacts did not constitute a site but that a combination and/or particular density of evidence was necessary to attribute site status. A range of above ground archaeological evidence that the survey was likely to encounter was considered, including archaeological ceramics, faunal remains, lithics, local histories, middens and iron smelting waste such as iron slag, tuyeres, disused furnace bases and mining pits. Of these, diagnostic ceramics were prioritised within the surface survey because they are the most chronologically diagnostic (see Chapter 4 section 4.2). Site status was attributed to locations with a sherd density of over ten specimens per 20m x 20m area. New sites were identified where surface scatters of finds were separated by more than 200m. In the absence of archaeological ceramics, sites were identified on the basis of a combination of iron smelting remains and at least one other form of evidence. Iron smelting rapidly became extinct in Rwanda after the arrival of Europeans who imported cheap scrap metal and discouraged smelting. Thus, in the rare absence of archaeological ceramics, site status was attributed based on the presence of smelting remains combined with testimony from elders that suggested smelting had not taken place there during the past century.

5.3 Implementing the Survey Methodology

Desktop survey: During the desktop survey all available published and unpublished sources were reviewed and the extant site location data was compiled. These sites were then plotted against topographic data from the available historic and modern cartographic sources. When this information was combined with other geographic layers such as vegetation density and access routes a targeted approach to surface survey was developed. This strategy took into account the need to access new archaeological resources, whilst also identifying known resources at regional scales, by identifying survey zones that were in close vicinity to areas with good archaeological preservation but that did not overlap already surveyed areas, or areas with limited accessibility. This strategy maximised the potential for the successful identification of new archaeological resources whilst also linking this survey area with a known body of archaeological data from the published sites.

Through an assessment of the results of this desktop survey it was decided that a six-month non-invasive survey, followed by a six-month sub-surface survey, would be conducted in three 15km x 15km zones within three contrasting locales: Ruhengeri in the north, Gitarama in the centre, and Butare in the south. This strategy was designed to generate data from three geographically and politically distinct regions and consequently investigate a diverse cross-section of Rwanda's past. Ruhengeri is a lacustrine region, situated at the foot of the Virunga volcanic range, enjoyed great prestige during Ndori's reign in the 17th century but waned in importance at the periphery of the kingdom in later times; Gitarama is a region on Rwanda's central plateau, was at the heart of the kingdom during the 18th and 19th century; and Butare is a riverine region at the southern periphery of the kingdom, which was sandwiched between the competing kingdoms of Rwanda and Burundi (Vansina 2004: 53-56, 111).

Pedestrian Survey: The pedestrian survey was the main element of the non-invasive regional survey strategy and three complimentary methods were chosen before entering the field: systematic transect survey, opportunistic survey and interview survey. Systematic transect survey involves walking along parallel lines transecting the landscape. Sites are identified based on the occurrence and observation of surface archaeological materials and features, which are then recorded with a handheld Global Positioning System (GPS) unit, and relevant data which may be of significance in spatial analysis are recorded, such as extant archaeological remains, altitude, aspect, local environment, site size and density (Hodder and Orton 1976: 17). Whilst a single researcher may undertake survey, the procedure can be speeded up and coverage increased by employing more surveyors spaced at regular intervals along parallel transects. During pedestrian survey, representational samples of surface assemblages are collected to facilitate ascription of settlement history.

Opportunistic survey uses the same recording principles but is pragmatic and has the potential to identify sites that might otherwise be overlooked. Through this strategy specific features in the landscape such as hilltops and riverbanks can be directly targeted during the survey. Opportunistic survey is linked to the desktop survey when these locations maybe identified. For example in Rwanda, place names such as Butare (place of iron ore), and Gisagara (a historic name for a settlement), recognised on historic maps can direct the survey to areas of relevant historical activity.

Finally, during interview survey local informants are encouraged to enter into informal discussions regarding their knowledge of archaeological materials in the surrounding landscape. Their knowledge and opinions are recorded and these may lead the surveyor to archaeological resources that may not have been recognised during transect and opportunistic survey. These informal interviews may also contribute to the interpretation of identified archaeological materials.

Within the limitations of this fieldwork, and as part of the flexible methodology alluded to earlier, the survey strategy was adapted in the field. Once in Rwanda it became clear that systematic transect survey was impractical. Although the project was aware of Rwanda's dramatic landscape we were not prepared for the difficulty in crossing from hill to hill. The base of each hill is separated from the next by the rivers and marshes that snake around them (Fig. 5.2). The combination of very steep hills and rivers with few crossing points made transecting very difficult. This problem was compounded by the current socio-political situation in Rwanda. The recent conflicts in Rwanda have left behind a lot of suspicion (people are still being sought and prosecuted in connection with the 1994 genocide) and have resulted in new local administration control measures. For our work, documents had to be presented to each local authority at each small settlement and permission had to be sought from each landowner to cross or investigate their land. Rwanda is a densely populated country with each landowner owning only a small plot of land. Thus, within the time limits of the season, transect survey was not practical.

Fig. 5.2 Photograph showing typical terrain in Rwanda

Instead, following Robertshaw's (1994) survey in Uganda, it was decided to survey by way of the available paths and small roads that transect the land. This was made possible by the discovery of sources that detailed even the smallest of paths allowing us to monitor our progress and to achieve as even coverage as possible (e.g. see Figs. 6.1, 7.1 and 8.1). Whilst travelling down these routes, time was taken to informally interview groups of men, women and children at local centres. Archaeological examples such as iron slag and ceramics were shown and explained to the people who were asked to contribute any information they had about these objects occurring locally. Local people in rural Rwanda are well aware of their immediate environments because with a subsistence economy they literally live off the land and this strategy proved extremely fruitful. Although archaeological ceramics were more difficult for them to distinguish from modern wares, iron slag, which was often to blame for the breaking of their hoes, was readily identifiable and re-locatable, and more intensive survey undertaken around these finds often led us to further remains. The opportunistic survey was combined with this systematic and intensive informant and path survey and when information of potential resources immediately outside of the 15km x 15km zones was gathered these leads were also followed up. Site location variables recorded during the survey include, site elevation and aspect, find density, surface assemblage composition, distance to fresh water, typological date (based on a diagnostic surface assemblage) and site size. These variables were quick to record and simple to standardise.

Whilst the surface survey was highly successful, identifying over 150 new sites, it was important to also employ a sub-surface survey strategy. The site location data, as with all surface surveys, is heavily biased in favour of the most visible surface remains (discussed further in section 5.5 and Chapter 6 section 6.1). Total identification of past human activity in the landscape is impossible with any survey strategy. For example: preservation is never total; those sites that are preserved may be obscured by vegetation or may not have surface remains; surveyors may not recognise all visible remains; and it is rare that a survey can achieve total surface coverage. Furthermore, surface assemblages are often mixed, hindering dating, and revealing little about the sub-surface nature of the sites and the past activities that have taken place there. Therefore it was essential to employ a sub-surface survey strategy to collect stratigraphically controlled archaeological assemblages to add to our limited understanding of the survey sites and to address the stated research aims (Bower 1986).

Test Unit Excavation: An excavation strategy was designed that maximised the chance for the recovery of suitable archaeological assemblages by selecting the most promising survey sites based on surface assemblage density and composition and on the identification of sub-surface deposits, such as those seen in road-cut sections. Test-unit excavation was selected, rather than open-excavation, because it is well suited to the exploration of vertical stratigraphic relationships. This was an important consideration because this research was often dealing with previously unexplored sites where the initial concern was the establishment of a site chronology alongside the collection of archaeological materials for analysis. To increase the comparability of test-unit excavation assemblages recovered from survey sites the unit size was standardised to either a single 2m x 2m unit or two 1m x 2m units. However, where significant archaeological features or deposits were encountered the excavation units were extended to expose these horizontal elements, so that they could be better understood.

Excavation was undertaken using a range of hand tools and in order to maximise find recovery all excavated deposits were sieved through a 5mm mesh. This strategy allowed for the efficient processing of the deposits whilst collecting all finds >5mm. However, this also meant that finds <5mm, such as very small beads and animal bones, are likely to be under-represented in the overall assemblage. All archaeological materials encountered were collected including worked stone, small finds, zooarchaeological specimens, ceramics and iron slag.

The excavation strategy followed the single context recording method (see MOLAS 1994). This involves planning and excavating each context separately as it is encountered. This can be contrasted with multiple context recording where plans are created at opportunistic stages during the work as particular relationships are best revealed. Single context recording was preferred because it is more standardised and can thus be employed by multiple excavators working concurrently across a site without reducing overall consistency. All contexts encountered were planned and levelled using a dumpy level before excavation. Once excavation of a unit was completed sections were drawn to illustrate the vertical relationships of the deposits encountered and samples were taken.

This is a basic excavation strategy that has been well explored in the region by the author and others (e.g. Reid 2002; Ashley 2005) and which can be readily applied using the available materials in Rwanda. This strategy was designed to maximise the recovery of archaeological materials whilst minimising the potential time expenditure. Unfortunately by employing test-unit excavation the research rarely involved the total or quantifiable excavation of a single deposit, or allowed for an extensive horizontal understanding of the sites, thus restricting spatial understanding of feature relationships and hindering investigation into social aspects. However, it is believed these limitations are acceptable in a situation where little was known of the sub-surface nature of the sites and the establishment of site chronology and the collection of archaeological assemblages were of prime concern.

5.4 Post Excavation Methodology

5.5 Site Location Analysis

As mentioned earlier, the surface survey results are biased in favour of certain materials and locations and as a result the interpretative potential of these have been drastically reduced. For example the value of comparing surface survey sites based on find densities and site sizes is questionable when information regarding the size and percentage of the deposits, that artefacts have eroded out of, are unknown. Potentially, large sites with significant sub-surface deposits and low rates of erosion may be recorded as small sites, compared to less important sites with higher rates of erosion that have left larger more dense surface assemblages. Thus whilst the survey data will make a significant empirical contribution to this research through the identification of new archaeological resources it will only be used to make crude interpretations based on comparisons with extant settlement models in the region.

5.6 Ceramic Analysis

In order to develop the most appropriate ceramic analysis methodology it is important to review the research question, and the related research objectives, that this stage of analysis aims to explore.

Research Question:

What subtle continuities and variations can be identified in Rwandan Iron Age ceramics in contrast to the solid and inflexible framework previously used? (see Chapter 4 section 4.7).

Related Research Objectives:

1/ The identification of Iron Age archaeological ceramics in discrete dateable archaeological contexts.
2/ The identification of ceramic anomalies and/or patterns in production and use through the analysis of archaeologically identifiable variables.
3/ The identification of long-term ceramic histories at localised scales with an emphasis on recognising and celebrating variability.

Each stage of the ceramic methodology will be designed with reference to these research goals.

Ceramic Recovery and Post Excavation Processing:

Ceramics are often found at Iron Age archaeological sites in Great Lakes Africa (see Chapter 4 section 4.2). Pots were a common feature of Iron Age life and ceramics preserve well because they are durable and are not subject to the same preservation pressures as organic material such as palaeobotanics and zooarchaeological remains. Therefore, it was highly likely that archaeological ceramics would be encountered during surface survey and test-unit excavation. Whilst surface remains were used to help identify new archaeological sites and to suggest suitable locations for test-unit excavation, they were not analysed further because they are likely to be mixed reducing their interpretative value. Archaeological ceramics for analysis were recovered during excavation from within the test-excavation units and from the sieve as deposits were screened. These remains were bagged according to context and were washed before analysis.

Defining the Analytical Variables

Having restated the relevant research question and objectives, it is now important to review the major ceramic analytical variables, their sources and their appropriateness for this research. Thus, Fig. 5.3 follows Ashley's (2005: 151) review, which she conducted for her examination of ceramics from the northern shores of Lake Victoria. Her review was based on the Prehistoric Ceramics Research Group guidelines (1995) amongst other sources (see Clark 1983; Gibson & Woods 1997; Rice 1987; Rye 1981; see also David 1972; Shott 1996; Skibo et al 1997). Ashley's work is highly relevant to this research because it is the most recent review developed specifically for Great Lakes Africa. Furthermore, by following Ashley's methodology this research can be contextualised within one of the most extensive reviews of Great Lakes African ceramics ever conducted. Nevertheless, the methodology presented here was adapted in relation to the specific research questions and objectives of this research.

	Method of collection	**Application of data**	**Ease of collection**	**Usefulness**
Technology				
Fabric	Macroscopic identification of fabric types- inclusions, matrix, colour, firing	-Technology -Production systems -Function & use -Social expression	Moderate – requires site by site definition of fabric types as sourcing likely to be local	Good – comparison of different technological profiles for multiple purposes
Manufacturing technique	Visual identification of marks	-Technology -Production systems	Variable – depends on visibility method – e.g. wheel made easier to identify	Low- experience suggests little visual evidence of technique – diff techniques indistinguishable
Drying	Visual identification from surface treatment (e.g. leather hard burnish)	-Technology -Production systems	Variable – often dependent on other data, such as decorative effects	Low-moderate Often unclear what particular level of drying
Firing	Visual identification of oxidisation/ unoxydisation on surfaces and section	-Technology -Production systems	Good – discolouration easy to identify	Low – high probability that mixed oxidising/ unoxydising atmosphere ubiquitous bonfire firing, so little diagnostic data
Quantification				
Weight	Metric recording of weight with scales	-Depositions processes -Production systems	Good – simple weighing	Moderate – useful for intra- and inter-site comparison if comparable sites, but poor pres. hinders use
Number	Counting	-Depositional processes -Production systems	Good – simple	Moderate – as with weight
Morphology				
Form	Recognising	-Technology	Moderate - Some	Good – however

	orientation of rim sherds and matching to recorded variations	-Production systems -Function & use -Social expression	initial skill to orientate sherds, but easy once mastered	only viable for rim sherds
Rim	Recognising orientation of rim sherds and matching to types	-Production systems -Function & use -Social expression	Moderate – some initial skill to orientate sherds, but easy once mastered	Good – however only viable for rim sherds
Rim Diameter	Orientating rims sherds on rim chart	-Production systems -Function & use	Moderate-good – simple analytical aid (rim chart) with some practice easy to use	Good –however only viable for rim sherds over certain size (c. 3-4cm)
Percentage of Rim	Orientating rim sherds on rim chart with percentages marked	- Qualifying accuracy of rim diameter (higher %, greater incidence of accuracy) -Depositional/post depositional processes	Good	Low – poor preservation means that intra-site depositional processes are a low priority
Body thickness	Measuring of broken cross-section	-Production systems	Good	Moderate – useful for discussions of productive standardisation
Girth	Measurement in relation to rim chart Measurement by profile thingy (check name)	-Production systems -Function	Moderate – rim chart easy to use if vessel broken in right area, if not requires machine thingy	Poor – not enough whole/semi whole vessel for meaningful analysis of volume (see above for discussion)
Base diameter	See girth	-Production systems -Function	Moderate – see girth	Poor – see girth
Height	Simple measurement, but only possible with complete vessel	-Production systems -Function	Good – if vessel complete	Poor – complete vessels are very rare (see also girth)
Surface				
Surface treatment	Visual identification of surface treatment – e.g. burnish, polishing	-Technology -Production systems -Function	Good-moderate – depending on how clear the effect is (e.g. post-depositional abrasion may distort effect)	Moderate – but problems of post-depositional distortion makes difficult for quantities comparison.
Decoration	Visual identification of decorative effects	-Production systems -Social expression (-Technology, -function)	Good	High – very useful identification and definition tool. Potential variability, so requires detailed recording (specifics of effect as well as layout/location)
Post-Production/Use-life				
Residue	Archaeobotanical examination of contents residues left on interior of vessels	-Function	Low – requires specialist archaeobotanist	High – if expertise available can determine precise function of vessel
Re-use	Varies – may be question of contextual deposition (e.g. use as building material) or morphology (e.g. bead grinders)	-Function	Highly variable-entirely dependent on actual re-use rather than disposal and therefore a rarer possible variable	High – if evidence available can show multiple uses of individual ceramics
Abrasion	Visual identification of abrasion marks on surface(s) of vessel	-Function -Depositional processes	Moderate –good	Moderate– however not always easy if anthropogenic or natural

Fig. 5.3 Table showing the interpretive application of ceramic variables (reproduced with permission from Ashley 2005: 152)

Ashley (2005: 153) identified four pertinent and practical research areas for Great Lakes Africa ceramics, including: function and use, production systems, social expression and identification and definition.

Identification and definition is important because it can help to place ceramic phenomena within an established typology, to create new typologies, or to develop old ones. Identification and definition is achieved by describing as many variables as possible and by identifying significant patterns within these. Thus, only through a **holistic** approach to ceramics can the full variability of ceramic manifestations and patterning be appreciated. This approach enabled this research to analyse for previously unidentified ceramic manifestations and to develop a more textured nuanced understanding of existing ones.

When ceramics are found sufficiently complete and in sufficient numbers, a consideration of their **function and use** can reflect generalised practices and concerns of the communities or individuals that made and used them. This is because some vessel shapes are more or less suited for various functions. For example, plates are not useful for holding liquids but are more appropriate for serving, whilst variables such as vessel size and opening diameter may reflect the scale of use, such as individual or group. Thus, function and use studies are important for this research because they relate to dietary practices and subsistence orientation, and may also reflect levels of inter-site standardisation or variation. Ashley (2005: 153) found that vessel form and rim type are the most revealing archaeologically accessible variables concerning function and use. However, there are problems associated with attributing use based on form, for example attributions are commonly based on modern values and assumptions, and often cannot take into account the particular and perhaps contrasting values of the original users. Furthermore, information relating to vessel form and size may not be readily available depending on the degree of preservation for the archaeological assemblage and thus interpretations may be based on limited results. Thus, during this research where vessels were sufficiently complete this research attempted to investigate use and function. However, following this discussion, these results were used conservatively at a crude scale of interpretation. For example, assemblages were analysed for the ratio of serving vessels to storage vessels and for vessels more suited to holding liquids and those that are not.

Production system analysis refers to the scale at which the ceramics were manufactured. For example, were pots made in an individual's spare time for their personal use or were they made by a specialised group of potters working full time to be traded to an extended group of people. This information may relate to wider social structures and may reflect degrees of social control such as localised or centralised socio-political structures. The *chaîne opératoire* method of analysis is very important here. This method has been promoted by ethnographic and anthropological studies that have identified multiple socially meaningful variations contained within the technological production sequence (see Chapter 3 section 3.6). However, archaeologists are rarely privy to the same degree of information as ethnographers and anthropologists who are in the unique position of having living practitioners with whom they can interact and interview. Thus archaeologists must elucidate what they can from the available archaeologically preserved variables. With this in mind, Ashley (2005: 154) identified a range of archaeologically accessible variables including fabric, manufacturing technique, drying, firing and various surface treatments. These variables were recorded during this research and levels of standardisation within these were assessed to crudely suggest whether these reflect individual, craft or industrial scales of production.

Social expression may be present in many different ceramic variables as has been shown through the *chaîne opératoire* approach. However, in the absence of such rich degrees of data, archaeological studies tend to focus on decoration as the most obvious outward expression of group or individual meaning. Social expression is a pertinent ceramic variable for this research because it can help to develop social histories within the Iron Age in Rwanda. However, it is believed that it will be one of the most difficult to access and interpret. Whilst it is relatively simple to collect and record decorative evidence from archaeological ceramics there is no standard interpretative framework with which to follow. For example, ethnographic studies have shown that amongst other things decoration can reflect identity, belonging and communication, at individual, family, community, or larger societal levels (see Chapter 3 section 3.6). However, in the absence of rich ethnographic, historic or archaeological extant bodies of evidence, it is difficult or impossible to interpret which is the salient expression. Thus, whilst decoration was analysed as part of the identification and definition stage it was only analysed in relation to social expression where significant anomalies occurred or where assemblages were recovered from discrete archaeological features such as burials.

Thus, in response to this review, and Ashley's (2005) methodology, the following variables were selected for analysis: fabric type, weight, vessel form, rim style, rim diameter, body thickness, decoration type and position, and surface treatment.

Analytical Procedure

Following the **maximisation** criteria set out earlier, a hierarchical system was employed during ceramic analysis. This prioritised the most informative sherds and ensured that sufficient time was invested in sherds with the greatest chance of revealing evidence related to the key objectives already discussed. Therefore, all sherds below 2cm x 2cm were separated, counted, weighed and removed from the study before detailed analysis began. These small sherds were the least informative and their removal allowed more time to be focused on the most complete vessels. The remaining assemblage was subject to a two-tier analysis: *total sherd analysis* and *reconstructable sherd analysis*. During total sherd analysis, all sherds were briefly described but those that were more informative and enabled partial or total reconstruction of a vessel were separated for more detailed *reconstructable sherd analysis*.

Total sherd analysis first involved the grouping of all sherds greater than 2cm x 2cm into fabric categories. In the absence of detailed manufacturing data, the main source of technological information collected was the identification and profiling of fabric categories. Technological production information is important because it has been shown to reflect issues of production and social expression, and may aid ceramic identification and definition (see Chapter 3 section 3.7). Van Grunderbeek et al. (1983) have investigated this variable in Rwanda and Burundi and they found that a variety of raw materials were in plentiful supply across the countries, suggesting that fabric patterning will be a localised phenomenon. Therefore during this research different fabric groups were established for each site. However, where significant similarities between fabrics occurred at different sites these were explored. Following Ashley's (2005) methodology for fabric category attribution, based on the PPRG guidebook (1995), fabric categories were established on the following variables: colour, firing conditions, texture, structure of fresh break, inclusions (shape, quantity, composition, size), and possible cultural/typological associations. Each category was recorded on a standardised form that was added to as fabric category definitions developed throughout each site's analysis (see Fig. 5.4). Each fabric group was weighed and counted and the number and types of decoration observed were recorded along with surface treatment and potential typological grouping. Finally, all reconstructable sherds were removed for further analysis.

Fabric Number __G1____ Site Identified at ___GPS014_______Date_10/08/09

General Description: Grey (pinkish grey), partially oxidised, smooth, with rare to occasional inclusions.

Definition

Colour: Exterior Pinkish Grey
Interior: Grey
Fresh break: Black

Firing: Exterior: Oxidised
Interior: Oxidised
Core: Partially oxidised

Hardness: soft friable X hard

Fracture: coil break angular X smooth

Inclusions	Frequency	Sorting	Size	Shape	Type
Quartz	<5%	Poor	Coarse to Fine Sand	Sub Angular	
Mica	<5%	Mod	Fine Sand		

Related Information

Contexts/ Source: 38

Other occurrences

Cultural associations/ interpretations: Devolved Urewe Type

Associated/related fabrics

Notes

Fig. 5.4. Example of a fabric recording form used during fabric analysis within this research

The **reconstructable sherd analysis** stage focused on the sherds that could inform on the size and form of the complete vessel, categories of information that relate directly to all of the key objectives outlined earlier in this chapter. During reconstructable sherd analysis the following variables were recorded: fabric type, form, rim style, rim diameter, body thickness, decoration type and placement, surface treatment, cultural attribution and quality of execution. To aid statistical manipulation of the data all of the possible types relating to these variables were given a letter and number code allowing for standardisation and the compilation of large sets of data. (For an example of the codes and related types see Figs. 5.5-7).

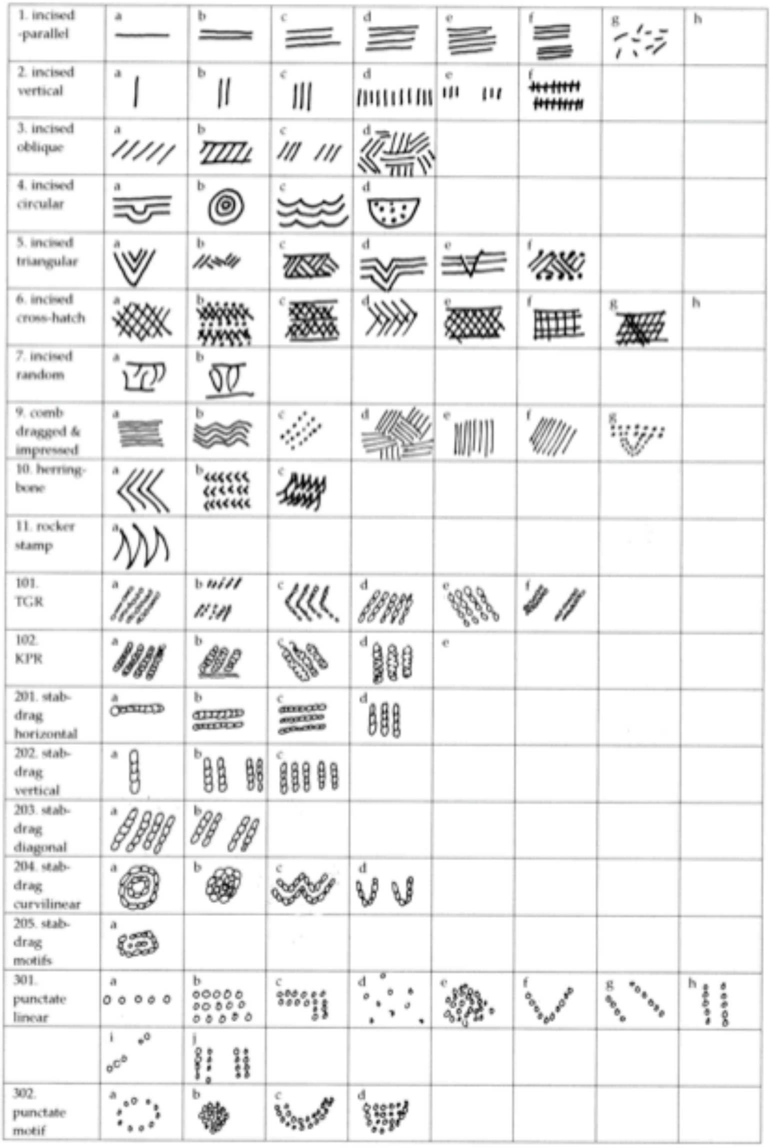

Fig. 5.5. Example form showing decoration codes for ceramic analysis (reproduced with permission from Ashley 2005: 351)

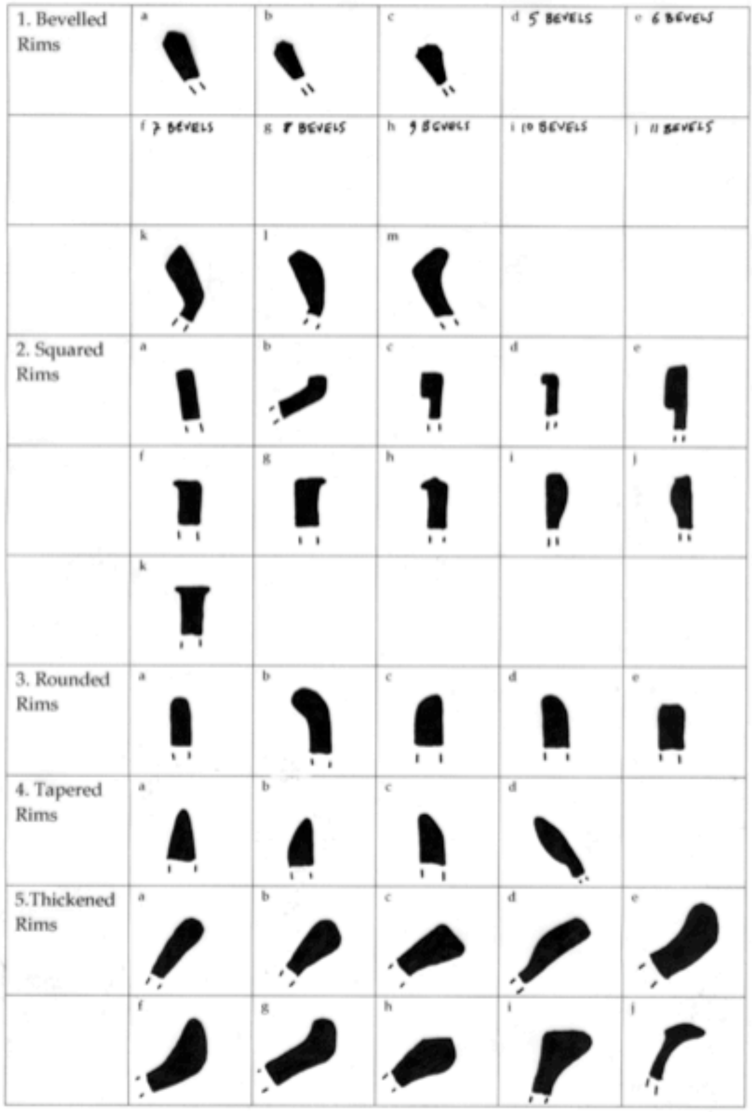

Fig. 5.6 Example form showing rim codes for ceramic analysis (reproduced with permission from Ashley 2005: 348)

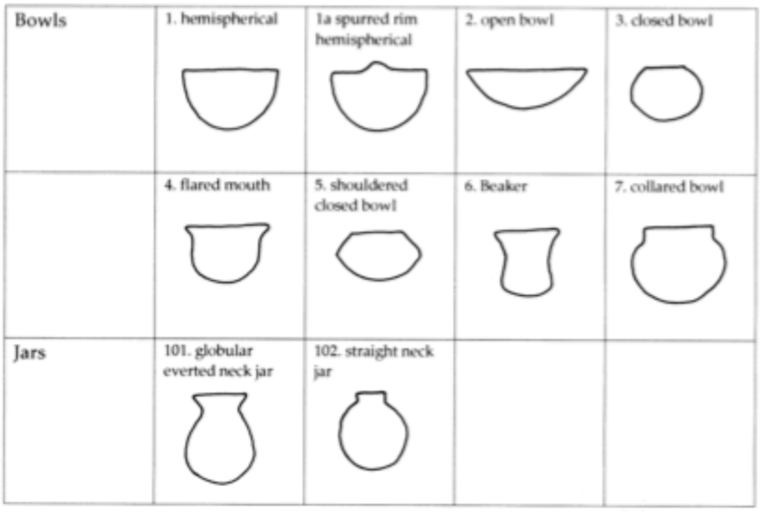

Fig. 5.7 Example form showing vessel forms for ceramic analysis (reproduced with permission from Ashley 2005: 353)

5.7 Zooarchaeological Analysis

In order to develop the most appropriate faunal analysis methodology it is important to review the research question, and the related research objectives, that this stage of analysis aims to address.

Research Questions:

What archaeological evidence exists to support a subsistence-economic trichotomy in pre-colonial Rwanda?

And where this null hypothesis is not supported:

What can we say archaeologically about forager–farmer relations in the Rwandan Iron Age?

Related Research Objectives:

1/ The identification of subsistence economic evidence, specifically the identification of foraged or herded remains.
2/ The identification of evidence relating to the scale and manner of production and means of procurement. For example, were these specialised or non-specialised practices or were these the result of trade.

3/ The identification of long-term subsistence histories at localised scales with an emphasis on recognising and celebrating variability.

Each stage of the faunal methodology was designed with reference to these research goals.

Faunal Recovery: The manner in which zooarchaeological samples are collected during excavation affects the overall assemblage. For example, if faunal remains are only recovered by hand from within the excavation trench then microfauna are likely to be under-represented compared to the larger, and therefore easier to recognise, macrofauna and megafauna. This problem can be dealt with by employing a deposit screening/sieving strategy using an appropriate mesh size. Whilst small mesh sizes will increase the sample they will reduce the speed at which deposits can be processed, conversely large sizes will speed up processing but reduce the sample size. Mesh size is thus dependant on the specific requirements of each research project. For example, Stahl (1996) suggests using a <1mm mesh in order to collect all identifiable bones. This time consuming approach was not suitable for this research and it was believed that a 5mm mesh would be effective at collecting material from most species likely to have been used within the human diet. Although small fish bones may be lost, fish vertebra and cranial fragments will not. As O'Connor (2000: 33) highlights, even when mesh sizes are large and collection incomplete, their use at least brings in sampling consistency.

During this research all excavated deposits were passed through sieves by hand. Purpose built sieving machinery was not available in Rwanda and would have been impractical and problematic because it requires electricity and water, which are in limited supply in rural Rwanda. This maximisation strategy is in contrast to reductive strategies, involving the sampling of a percentage of the excavated deposits, employed where assemblage sizes are likely to be large (e.g. Levitan 1983). In east and central Africa zooarchaeological remains are often poorly preserved resulting in small assemblage sizes (Young and Thompson 1999; Marshall 2000). Thus, a maximisation strategy was preferred instead of a reductive one. Therefore, where zooarchaeological concentrations were identified they were directly targeted. The final recovery stage involves separating the faunal specimens from the sieved material. Care was taken during this stage to identify all faunal remains present.

Selection of Analytical Variables

Having reviewed the main research questions, established the related research objectives and described the method of recovery to be employed, it is now necessary to review and show the prioritisation of the range of analytical variables that best address the specified research question and objectives. Following the **pragmatic maximisation** strategy outlined earlier, it was also important to consider the practical limitations of this research programme. For example, whilst an estimate of dietary contribution is important for the investigation of subsistence practices and the relative importance of taxa within the diet, it requires an extensive comparative collection that must be supplemented with live meat weights for each individual within the comparative collection that the excavated specimen is compared with. Such collections are rare, making the identification of appropriate individuals for comparison very time consuming, limiting the usefulness of this approach. Thus, the major zooarchaeological analytical variables have been reviewed in the table below (Fig. 5.8). Each variable has been assessed for its ease of collection, interpretative application and usefulness for this research programme. The summary presented here is based upon O'Connor (2000) and Reitz and Wing's (1999) comprehensive methodological reviews.

Topic	**Method of Collection**	**Application of Data**	**Ease of Collection**	**Usefulness**
Estimating Body Dimension	- Measuring bones dimensions	- Separate skeletally similar species.	- Straightforward but need complete or nearly complete bones and a standardisation of measurements for cross-comparison which is not available for most species.	- Medium: Useful for domestic species where control data is available but not applicable to wild specimens.
Estimate Age at Death	- Measuring Cemental Increments	- Information about hunted prey and domestic and their slaughter patterns.	- Difficult: requires species-specific standardisation, it is destructive requiring specialist techniques and is slow for each sample to give a result.	- Low: There is not a standard for species in east and central Africa and it is time-consuming requiring unavailable expertise. Another way is to use growth increments although this is rarely found in animals with determinate growth. Although it has been found in tooth cementum. Whilst this is normally used to indicate season of death, season and age are often closely linked in some

				parts of the world.(ibid 185). Although this is unlikely to be appropriate in central Africa where seasons are often indistinct.
	- Measuring Dental Eruption	- Information about slaughter patterns.	- Straightforward where dental information is preserved but only estimates individual ages up to the maximum eruption when individual has reached full maturity. After which dental attrition must be measured.	- High: Very useful for assessing slaughter patterns that may relate to the level of production and reflect wider socio-political organisation.
	- Measuring Dental Attrition	- Information about slaughter patterns.	- Straightforward where regionally specific control studies exist. However becomes less accurate where these are not available, although generalisation can still be made.	- High: Very useful for assessing slaughter patterns that may relate to the level of production and reflect wider socio-political organisation.
	- Observing fusion of the Epiphyses of the post-cranial skeleton	- Information about slaughter patterns.	- Straightforward where fusion sequences are known for specific species but becomes more generalised where these are not available. Also is only useful for estimating age at death of animals up to the time they reach full anatomical maturity.	- High: Very useful for assessing slaughter patterns that may relate to the level of production and reflect wider socio-political organisation. Most useful for domestic species where the fusion sequence is better understood.
Estimating Sex	Observation of morphological characteristics or by relative size ratios from body measurements.	- Husbandry strategies - predator-prey relationships - food preferences	- Moderate: requires the preservation of specific elements for measurement.	- Low: need a large assemblage size to make this statistically valid.
Estimating the Number of Individual Specimens (NISP)	- Identification and counting of specimens relative to each taxon.	- Relative frequencies permit synchronic and diachronic exploration of environmental fluctuations; successions; taphonomic, recovery, and sampling biases; and cultural differences.	- Straightforward. Only becomes more complicated with highly fractured specimens that may have come from the same element.	- High: Easily accessible but must be used critically as the NISP only reflects the maximum number of individuals represented in an assemblage and not the actual number of exploited,

		Relative frequencies of taxa are most commonly used to augment age and sex ratios; to identify specialised sites or activity areas; and to compare animal use by distinctive social groups through time and space.		deposited or excavated individuals.
Estimating the Minimum number of Individuals (MNI)	- Identification of specimen to taxon and side	- Relative frequencies permit synchronic and diachronic exploration of environmental fluctuations; successions; taphonomic, recovery, and sampling biases; and cultural differences. Relative frequencies of taxa are most commonly used to augment age and sex ratios; to identify specialised sites or activity areas; and to compare animal use by distinctive social groups through time and space. - relative importance of animals in the diet.	Straightforward. Only becomes more complicated with highly fractured specimens that may have come from the same element.	High: Easily accessible but must be used critically because it only reflects the minimum number of individuals represented by an assemblage and not the actual number of animals used, deposited or excavated.
Skeletal Frequency	- Counting elements and comparing frequencies.	- Butchery practice - food preference - taphony - transportation - disposal habits - nutritional analysis - activity areas - site function - economic institutions - social organisation	- Difficult: quantification difficult - broken fragments lead to potential for counting - over-representation of larger elements as they are more likely to preserve	- Moderate: Useful where large assemblages exist making skeletal frequency statistically meaningful but has interpretative limitations due to inherent biases.
Estimates of Dietary Contributions	- Direct comparison of archaeological specimen with a reference skeleton	- Nutrition	- Difficult: requires an extensive comparative c collection with meat weights recorded.	- Low: Presumes whole animals are brought to site and cannot account for varying portions of animals.

Fig. 5.8. Table showing the major analytical variables in zooarchaeology summarised from Reitz and Wing (1999) and O'Connor (2000).

This review has identified four main analytical objectives appropriate for this research: taxonomy, age at death, modification and body dimension. These research topics and the sources with which they will be addressed will be described in detail below.

"Taxonomic Attributions" and Estimating the Relative Number of Individuals Present

During the first stage of zooarchaeological analysis, each specimen was described and was ideally attributed to a taxonomic group. This information was later processed so that an estimate of the relative number of individuals present in an assemblage could be made. Taxonomic attribution was essential for all the following analytical stages because it is difficult to appreciate the significance of a particular assemblage or specimen without first understanding the species that it represents. During taxonomic attribution a hierarchical approach to specimen analysis was adopted which prioritised the most informative specimens whilst removing the least. Although it is theoretically possible for every specimen to be attributed to an element and taxon group, this was not always practical. Archaeological bones are rarely recovered complete and are more commonly heavily fractured and fragmented. The more incomplete a specimen the more time investment is required for a confident identification. Therefore, a balance must be achieved that maximises the number of specimens identified to species within a PhD timeframe. Thus, a hierarchical system was employed that invested the most analytical time on the most complete, readily identifiable, specimens. Every assemblage from each context was divided first into those fragments that had the least chance of being attributed to an element grouping. These small heavily fragmented specimens were counted and separated from the total assemblage and these commonly included thin shaft fragments with little or no readily observable diagnostic features. The remaining assemblage was then separated into taxonomic element groups. Identification of the element was an essential stage towards the attribution of a taxon to a specimen.

Having attributed a specimen to an element group it must then be compared to a comparative collection in order for a confident taxonomic attribution to be made. When a specimen is sufficiently complete and can be compared to a suitable reference collection it may be possible by process of elimination to identify the taxon that it is from. O'Connor (2000: 39) suggests that instead of "taxonomic identification" this process should be referred to as "taxonomic attributions" because it represents a best fit and is not definitive. O'Connor summarises how taxonomic attribution is achieved by asking a series of questions of each specimen that has been attributed to an element group:

What size animal is this from?
What type of animal is this from?
What possible animals from this geographic region and period could this animal therefore be?

From this narrowed down list it is possible to go to a reference collection and compare the specimen and potentially arrive at a confident match. Some faunal elements will be more identifiable than others and thus it may not always be possible to take a specimen all the way to species. Where this occurs it may instead be possible to attribute an animal size and type e.g. large mammal or large bovid. This is often the case for sheep (*Ovis aries*) and goat (*Capra hircus*) specimens, which are notoriously difficult to differentiate and often can only be assigned to an *Ovis/Capra* group (e.g. Payne 1969, 1985a). Although the attribution of all specimens to species was an ideal for this research it was balanced against the considerable time investment that this required and thus not all specimens were attributed to species. Furthermore, it is understood that attribution is a best fit and is not definitive. Therefore it was more important to identify a specimen accurately to a general category that had an acceptable level of confidence, than to a precise category with a low level of confidence. This research utilised the detailed domestic reference collection at University College London's, Institute of Archaeology, zooarchaeology laboratory and the more extensive wild reference collection held at the Natural History Museum, London.

Having made a taxonomic attribution, the proportion of each specimen preserved was recorded. This was important because it reflects the confidence with which a taxonomic attribution was made, and may also relate to butchery practices. To reduce subjectivity during this stage it is usual for categories of convenience to be employed that relate to element zones, or the percentage of the element preserved. Elements may be divided into a number of morphological zones and where these are preserved on a specimen these are recorded. Whilst this is slower than estimating the percentage of an element preserved in the specimen, it is specific and more accurately describes each specimen and zonal categories are suited to studies of butchery and post-depositional processes (O'Connor 2000: 41). Thus, zonal categories were adopted here, however, because the research questions do not involve a detailed study of butchery practice or post-depositional processes, and in order to speed up the analysis, they were simplified to three zones (proximal, shaft and distal) and four qualifiers (fragment, fractured, half, whole).

Before the relative frequencies of taxa can be estimated the side of the body that each specimen comes from must be recorded. The side of the body that an element comes from is important because it relates directly to the calculation of the minimum number of individuals (MNI) present in an assemblage, an important calculation when estimating relative frequencies of taxa (to be discussed further below). However, side identification is only appropriate for some elements. For example, vertebrae, cranium and sternum are in the central column of the body and do not have a side, whilst ribs and metapodials occur many times on each side of the body and their interpretive potential for MNI is reduced.

Estimating relative frequencies of taxa commonly involves two different calculations: the number of identified specimens (NISP), and the minimum number of individuals (MNI). Specimen weight may also be used to estimate the relative frequency of taxa. However, this method was not employed here because it is inappropriate for comparison of species with potentially large differences in body size (Chaplin 1971, Casteel 1978). Whilst estimates of the relative frequencies of taxa have many interpretative applications, outlined in the review, they were only used here to crudely evaluate the relative importance of animals in diets obtained through various subsistence strategies.

The number of identified specimens (NISP) or total number of fragments (TNF) is a specimen count, which is often used to estimate the relative frequency of taxa (Reitz and Wing 1999: 191). This approach has been criticised because it assumes that fragmentation and recovery rates are uniform for each taxon and that all taxa are equally likely to be counted (Grayson 1984; Ringrose 1993). Different taxonomic groups have varying amounts of identifiable hard tissue, with varying survival rates, and thus some are likely to be over represented compared to others (Gilbert et al. 1982). Furthermore, it is also difficult to establish if specimens are independent of one another or if they come from the same individual (O'Connor 2000: 56). Gilbert and Singer (1982: 31) describe NISP as "ideal for ideal samples only". However, others have suggested that interdependence is not such a problem and that high levels of taphonomic attrition reduce the probability that anyone individual contributed more than one specimen to the assemblage (e.g. Gautier 1984).

The Minimum Number of Individuals (MNI) is the smallest number of individuals that are necessary to account for all the skeletal elements of a particular species found in an assemblage (White 1953: 397; Klein and Cruz-Uribe 1984: 24-38). White (1953) was the first to use MNI within archaeology, with later refinements by Chaplin (1971). MNI works by separating the most abundant skeletal element of a particular taxon into right and left sides, excluding axial elements, and counting each of these. The side that has the highest number is taken to represent the minimum number of individuals (MNI) necessary to have created that assemblage. Whilst MNI is a relatively simple and conservative calculation it has also received a lot of criticism (Plug and Plug 1990). MNI is affected by similar biases to NISP, including: the number of identifiable elements in each animal, site formation processes, recovery techniques and laboratory procedures. However, unlike NISP, MNI is solely an analytical product (Reitz and Wing 1999: 195). The MNI should not be interpreted as actual numbers of individuals used at the site because the actual number of individuals represented is likely to have been more. Furthermore, it should not be used to represent the minimum number of whole animals because often only portions of animals will be brought to the site (Grayson 1984: 62-63). Therefore, the NISP represents the maximum number of individuals potentially represented in an assemblage and the MNI is the minimum, thus neither is the real figure so neither is right but also neither is wrong (Klein and Cruz-Uribe 1984: 202). However, despite these and other identified problems, MNI continues to be used widely.

A number of analysts have attempted to mitigate these problems with further calculations. For example, Chaplin (1971: 69-70) and Klein and Cruz-Uribe (1984: 26) advocate 'matching' a process that can increase the MNI by considering other factors such as age, sex and size along with side. Element percentage can also be factored in, for example Klein and Cruz-Uribe (1984: 26-29) suggest recording the fraction of the element present and then adding these together. Alternatively, Albarella and Davis (1996: 3-4) suggest that only dimensions with at least 50% preserved should be counted, with some exceptions such as metapodia. Both of these techniques may be appropriate where there are very large samples and a danger of counting fragments of the same element as separate individuals. However, it is unnecessary where sample sizes are small and fragments of the same elements can often be easily identified.

Animal bone quantification is complicated and its interpretative potential is dubious if it is used uncritically because it is difficult to establish a clear relationship between the archaeological assemblage, the killed population and the living community. Relative taxa calculations fail to take into account taphonomic processes, and bias during collection and identification. For example, Payne (1985b) argues that NISP minimises the importance of species only represented by a few specimens but exaggerates the importance of species with more readily identifiable elements. He also suggests that MNI emphasises the importance of rare animals in small well-recovered samples because one identifiable element will equal one whole individual. Thus, NISP and MNI can only be considered to be a description of the archaeological assemblage and not the death assemblage or the living community, thus any interpretation must reflect that because beyond the archaeological assemblage NISP and MNI lack validity (O'Connor 2000: 55). However, as O'Connor (2000: 65) suggests, even though each method "brings with it its own 'noise'", which masks that signal, there is useful information in the NISP and MNI, but in order to use that data accurately, analysts should adopt conservative approaches to interpretation focusing on large anomalies not slight differences.

Following this review, the zooarchaeological analysis conducted during this research adopted a conservative approach to the estimation of the relative frequencies of taxa. NISP was calculated to describe the maximum number of individuals represented by an assemblage and MNI to describe the minimum, and relative frequencies will only be discussed where large, potentially significant, anomalies have been identified.

Estimating Age at Death

Forms of aging evidence include the state of epiphysal fusion of post-cranial specimens, and the state of eruption and wear in teeth. These data can indicate the approximate age when an individual died and this is important for estimating kill-off patterns, which can reveal information about hunting and husbandry practices. For example if individuals cluster in a single age class this can indicate targeted hunting or culling strategies (Reitz and Wing 1999: 181).

Fusion of the epiphyses of the post-cranial skeleton: The state of fusion of the elements from the post-cranial skeleton can help create an estimate of age at death of an individual. In a typical immature animal a limb bone has three parts: the shaft or diaphysis, and the proximal and distal epiphyses. The epiphyses are attached to the diaphysis by the epiphysial cartilage, which allows bone growth on either side of the cartilage. When an element is fully grown and has reached maturity the epiphyses will fuse to the diaphysis. Elements do not all fuse at the same time but follow a predictable sequence in mammals. However, these sequences vary from species to species and may vary within a species due to nutrition, environment and disease (for an example of fusion sequences see Amorosi 1989).

Fusion data can be processed to generate age at death sets. However, there is no agreement on the calculations to be used and different calculations can produce contrasting age sets (Watson 1978). It is rare that archaeological elements, isolated from the complete skeleton, can give precise age at death information Therefore all age at death estimates must be viewed as ranges rather than points. For example, Chaplin (1971: 80-81) recommends dividing the age groups into three based on the age at which fusion generally occurs: 10 months or less, between 18 and 24 months and those older than 36 months. Another problem with fusion data, and other age at death sources is the unknown relationship between individual specimens. Thus, the relative age of a single individual may be estimated several times within one assemblage. Furthermore, unfused and incompletely ossified specimens are also less likely to survive in the archaeological record than fused ones (Klein and Cruz-Uribe 1984: 43).

Unfortunately fusion sequences are not available for most central African species likely to be found in Iron Age Rwanda. Therefore fusion data will only be used to suggest a crude age at death for individuals. Following Chaplin (1971), fusion data will be used to suggest one of three 'age at death' estimates for each specimen. Unfused specimens will be used to attribute immaturity, fusing elements will be used to attribute juvenile status and fused specimens will suggest mature status. These data will be used conservatively to explore issues of standardisation and variety in husbandry practice. However, it must be restated that fusing happens at different ages for different bones, thus fusing will only be compared within single element categories for the same species where appropriate.

Dental Eruption and Attrition

Dental eruption and attrition data can also be used to help estimate the age at death of an individual. However, unlike fusion data, which is most useful for young animals, eruption and attrition data can be used throughout the life of the animal (Klein and Cruz-Uribe 1984). It begins when the first tooth erupts and continues through the life of the animal giving a relative indicator of age. These studies rely upon the premise that eruption sequences and timings, and rates of attrition are predictable. However, whilst this may generally be true there are exceptions. For example, Klein and Cruz-Uribe (1984: 52-55) found that individual variation may exist within populations of the same species and Grant (1978) found that teeth might not be uniform on both the left and right side of the mandible of the same individual. Therefore, it is important to remain conservative with interpretations of this data, prioritising large assemblages and the most complete specimens where possible. To reduce errors through variation Payne (1973) and Grant (1978) suggest combining both eruption and wear sequences.

Tooth Eruption: If an individual dies before all their permanent teeth have fully erupted it is possible to estimate the age at death of that animal based on the stage of eruption through comparison with established sequences. This method is considered to be more reliable than fusion data because enamel is more durable and therefore is more likely to be preserved giving a greater chance for both old and young specimens to survive. However, like fusion data it is subject to variation and should thus only be used to generate age classes and not specific ages (Reitz and Wing 1999: 184-185).

Tooth Wear: Eruption sequence data is useful for the estimation of age at death up to the age at which all teeth are fully erupted but this often happens well before the maximum age of an animal. From this point on attrition is used to measure the degree of wear and estimate age. Tooth wear analysis assumes that wear is constant and predictable, however, like eruption and fusion sequences variation exists due to environmental and nutritional pressures (e.g. Lowe 1967). The degree of attrition is measured in two ways, by direct measurement of the height of the tooth, or by examination of the pattern of dentine exposure produced as the enamel of the occlusal surface is worn away. Measuring attrition by dentine exposure patterns requires a form by which wear stages can be classified. Payne (1973, 1987) has developed such a sequence for sheep and goat by noting the sequence in which different cusps of each tooth come into wear and the sequence of exposure of the dentine as the enamel is worn away (O'Connor 2000: 87). Different combinations of the attrition states reached by teeth in one mandible then allow that mandible to be put in one of a series of classes, which have approximate age-equivalents based on observations from modern animals. Grant (1982) has published diagrams of tooth wear stages for the lower fourth premolars and molars of cattle, sheep and goats, and pigs, requiring specimens to be recorded in pre-determined categories to give age ranges.

Therefore, during this research dental eruption and attrition will be recorded and translated into estimates of age at death for cattle, sheep and goats, because these are the only taxa with well established published sequences that are likely to be encountered during this research (see Grant 1982 and Payne 1973, 1987). Where sufficient data exists this has been compiled to explore kill off patterns and infer specialised or non-specialised forms of animal husbandry, which is one of the main objectives of this stage of the research.

Modification: Burning, Butchery and Gnawing

Modification refers to the alteration of a specimen from its original whole and may be the result of human action, deliberate or unintentional, or animal action. Observation of bone modification may reflect human practices during production, consumption and/or deposition.

Burning: Burning can be recognised through the observation of charring or discoloration of a specimen. Burning suggests that the specimen has come into contact with fire, which may be the result of deliberate processes such as waste disposal. Whilst it is possible that specimens could become burnt during cooking this is unlikely because the burning of food during roasting is likely to affect the meat more than the bone, due to the protection the meat affords the bone and the fat present in the bone tissue itself. Whilst different degrees or types of burning may be divided into various categories to indicate different temperatures (for example see O'Connor 2000: 45), during this research it will only be identified as present or absent because grading is of limited interpretative value and is a highly subjective attribution. In some zooarchaeological studies the location of burning may also be recorded because this can reflect cooking practices such as spit roasting (O'Connor 2000: 45). However, in the absence of detailed ethnographic records or experimental data, that are not available for Iron Age Rwanda, the interpretative value of such studies is questionable. Therefore in order to save time burning location has not be considered further.

Butchery: Butchery evidence can be identified by the observation of diagnostic markings and fractures on a specimen. Butchery marks are the result of deliberate human action and they may be left on bones during a variety of pre-depositional stages, including killing, skinning, jointing and eating. Butchery marks may be produced with a variety of tools made from a variety of materials such as stone and metal (O'Connor 2000: 45). Butchery marks can indicate butchery practice, dietary preference, hunting practices, levels of standardisation, and meat availability (Brain 1981). Butchery marks can be divided into two general categories: cut marks made as a result of cutting overlying tissues by a knife, leaving very fine long parallel incisions, or chop marks, made by using an axe or cleaver to remove muscle from the bone that remove semi-circular wedges from the bone (O'Connor 2000: 45). There are also other marks such as punctures made by hammering the bone that leave percussion marks radiating out from a circular point of impact. Within this research observed butchery marks and their positions have been identified and classified as either knife cut marks, chop marks or puncture marks.

Gnawing: In contrast to butchery marks, gnawing marks are normally not related to human action but are more often attributed to the actions of animals such as cats, dogs and rodents. Specimens with gnawing marks may have been introduced to an archaeological site by wild scavengers or scavengers may have entered a site and gnawed on bone waste discarded by humans. In the later example this may infer that bone waste was not immediately interred in a rubbish pit or burnt but was discarded and left on the surface long enough for scavengers to access them. This scavenging evidence is part of the taphonomic record and should be recorded. It may help to explain the inclusion or exclusion of certain elements or it may arise as a potential answer to general anomalies seen in an assemblage. Gnawing is not random, for example certain bones, and certain parts of bones, will be selected ahead of others, such as the proximal end of the humerus, and the scavenging animals may leave diagnostic gnawing marks. For example dogs will tend to crunch and chew (O'Connor 2000: 47). During this research, where gnawing has been identified it has been recorded and used to help interpret deposition processes.

Measurements and Estimates of Body Dimensions

The size of an element's morphological features can infer the relative size of the animal through comparison with other measured specimens. This information can be used to help distinguish between closely related species with similar morphologies but dissimilar dimensions, and to distinguish wild from domestic taxa (Reitz and Wing 1999: 177-178). For example, Payne (1969) distinguished between sheep and goat bones through the quantification of morphology. This is also an important research topic because a size change in the population over time may reflect changes in human or non-human predation, to food availability, or to climatic changes (Klein and Cruz-Uribe 1984: 94-98).

During the initial recording stage, after taxonomic attribution, suitable specimens are measured, and this information is processed and interpreted to help estimate an individual’s original body dimension (e.g. von den Driesch 1976). Measuring is usually only applied to particular elements and species that best reflect changes in body size and have an established set of standards available for comparison. Measuring is also only appropriate in certain research contexts, for example it is impractical with large assemblages to measure every bone. Conversely, in small assemblages statistical analysis of measurements may not be appropriate because a single exceptional individual may disproportionately affect the description of the sample.

An estimate of the body dimension of an individual animal can be achieved by either comparing the measurements of morphological features from archaeological specimens with reference skeletons or by using indices (Reitz and Wing 1999: 174). If an archaeological specimen has shared size characteristics with a reference specimen it may be assumed that the individuals also shared the same body dimension (Reitz and Wing 1999: 174). However, this relies on the body size data of the reference skeleton to have been recorded and archived, which is rare. Instead of direct comparison indices based on modern data can be used to estimate body dimension (Reitz and Wing 1999: 174). However, there are a variety of different formulae that can be used and these can produce dissimilar results (Bartosiewicz 1995: 45).

Accurate estimation is complicated because a specimen’s original body dimensions will be related to a multitude of influencing factors, including age, sex, geographical range, and individual variation (Armitage 1982; Steadman 1980). Yet, much of this information will often not be available to the archaeologist. Sample size is also important because it influences the range (Simpson et al 1960: 80). Another problem is that indices used are based on modern data and cannot take into account historical variations in the relationship between element morphology and body dimension. Other problems include the measuring of sub-adults as adults after fusing and that large well-ossified, fused elements may be removed for use as tools and so may not be represented in the sample studied by zooarchaeologists (von den Driesch 1976: 4). A good example of why worked bone must also be included in zooarchaeological studies.

Following this review bone measurement data has only been taken for cattle bones because these have a well-established standard and these measurements may inform on the particular breed of cattle represented, and may also reflect choice in animal husbandry and diet, which are directly related to issues of subsistence orientation (von den Driesch 1976). However, unfortunately not enough measurable cattle bones (those that were sufficiently complete) were identified during the research to make a confident attribution of species, such as longhorn or short cattle. Thus, this avenue has not been discussed during the results chapters.

5.8 Palaeobotanical Analysis

Research Question:

The related research question for this stage of analysis is the same as for the zooarchaeological section:

What archaeological evidence exists to support a subsistence-economic trichotomy in pre-colonial Rwanda?

And where this null hypothesis is not supported:

What can we say archaeologically about forager – farmer relations in the Rwandan Iron Age?

Related Research Objectives:

1/ The identification of subsistence economic evidence, specifically the identification of domestic or wild plant remains likely to have been used in the human diet.

Palaeobotanical sampling and analysis aims to collect and identify evidence relating to non-animal contributions to the diet. Unlike the other analytical stages described above, it is unnecessary to review the analytical variables for this stage because statistical manipulation of the remains was severely curtailed by the size of the palaeobotanical assemblage. As Young and Thompson (1999: 63-72) discuss, it is rare for palaeobotanic evidence to be preserved in eastern and central Africa due to unsuitable soil chemistry and climate. Therefore it was unlikely that this research would encounter assemblages of sufficient size to enable statistical processing and comparison of the results. Thus, the focus of this stage of analysis was taxonomic attribution of any specimens recovered and the crude investigation of cultivation or collection practices that these may reflect.

In the light of Young and Thompson's (1999) review of palaeobotanical studies in Great Lakes Africa, this research adopted a maximisation strategy during palaeobotanical sampling. All sealed archaeological deposits and features were sampled to increase the chances of identifying preserved floral evidence. Surface deposits and unsealed features were not sampled because these have a high chance of contamination from modern material. Ideally a sample of 20 litres was taken from each context. This arbitrary quantity was selected because it was believed to be practical within a test-unit excavation methodology where contexts were often only partially accessible. Furthermore, these small sample sizes facilitated processing within a PhD timeframe. However, where small features or deposits were encountered this sample size was reduced respectively. Samples were ideally taken from the section wall after excavation of each unit had ceased, although in some cases this was not possible and discrete features were half sectioned and samples were removed in plan. The soil samples were processed in Rwanda where they were suspended in water and were passed through three environmental sieves with mesh sizes of 2mm, 1mm and 300μm in order to collect and separate all remains above these sizes. These collected samples were then dried and taken back to University College London's, Institute of Archaeology, palaeobotanical laboratory where Dr Dorian Fuller supervised the analysis. The samples were individually analysed under a microscope and all palaeobotanic remains were separated and placed in sample tubes before they were further analysed aiding taxonomic attribution. Taxonomic attribution in palaeobotany is similar to that already described for zooarchaeological analysis, it is a process of elimination whereby the possible range is narrowed down by geographical region, archaeological period and specimen morphology, before a comparative collection can be utilised in a targeted fashion. Where a confident attribution can be made this was recorded and used as empirical evidence of the presence and presumed utilisation of a particular species at that site.

5.9 Other Forms of Evidence

Following the holistic maximisation criteria outlined earlier this research aimed to collect as much evidence as possible from a range of sources. For example, charcoal was sought for radiocarbon dating. Where suitable samples from sealed contexts were identified their three-dimensional position within the test-excavation unit was recorded, and they were given an individual sample number and were preserved in aluminium foil before being sealed in a sample bag. Other finds such as beads and metals were also recovered. Whilst these are not directly relevant to the research questions set out here they have added to our understanding of the site occupant's lives. All metallurgical remains have been submitted to Jane Humphris for her PhD study of iron metallurgy in pre-colonial Rwanda and any results forthcoming before the completion of this thesis have been summarised within the results chapters (6, 7 and 8).

5.10 Structure of the Results

This research has re-located published sites and identified new archaeological sites through six months of archaeological survey in three study zones in Rwanda. During a secondary six-month season the most promising of these sites were test-excavated in order to gather dating evidence, ceramic evidence, zooarchaeological evidence and palaeobotanical evidence. These remains have been identified and described and where possible these results have been processed and analysed to inform on issues pertinent to this research. The results of these two field seasons and the subsequent analysis are presented as three separate case studies describing the results from each zone, southern, central and northern, in the following three chapters (Chapters 6, 7 and 8). Sites will be discussed at a site-by-site level and the results will be compiled and contextualised separately (see Chapter 9).

Chapter Six

Research Findings from Southern Rwanda: Case Study 1

This chapter presents the results from the systematic survey and excavations in the southern study zone. It will first briefly discuss the survey results and will mention the unsuccessful test-units excavated at a range of sites, before describing in detail the more intensive and successful excavations at Kabusanze (BPS036).

6.1 Southern Survey Results

Systematic and opportunistic survey was undertaken in the southern study zone over two months from October to November 2005 (Fig. 6.1). The administrative centre within this survey zone is called Butare - now Huye - and all new sites identified in this zone were given a Butare Pragmatic Survey (BPS) number. In the southern survey zone fifty-two new sites were identified along with ten previously published sites (Fig. 6.2). With the exception of Mara and Nyirankuba (Hiernaux and Maquet 1960; Nenquin 1967a) all the previously published sites are located to the south of the survey region and are the result of intensive work by Van Grunderbeek (et al. 1983, 2001) and Van Noten (1983) into early iron smelting. Previous investigations at these sites have ranged from simple surface identification of archaeological materials as at Mara and Nyirankuba to test-unit and furnace base excavation as at Kabuye, Cyamakuza and Gahondo.

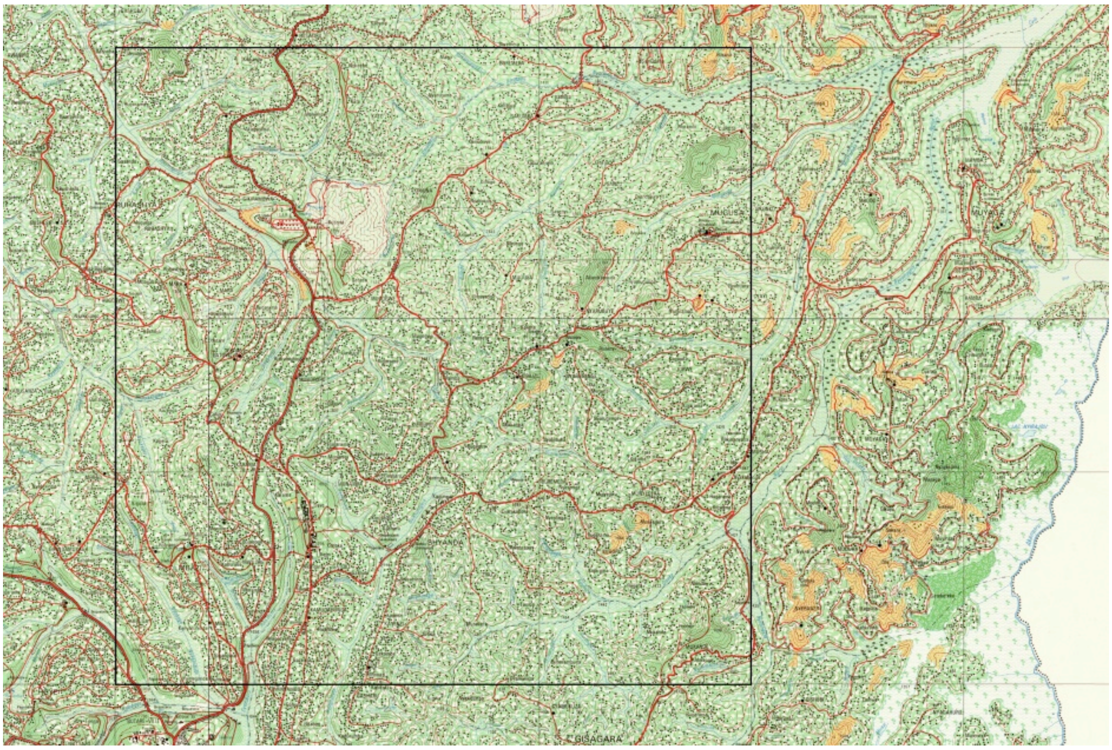

Fig. 6.1 Map showing the southern survey zone (15km x 15km), outlined by bold black line. The bold red lines indicate roads whilst the thinner red lines are tracks and paths (reproduced and adapted with permission from CGIS Rwanda)

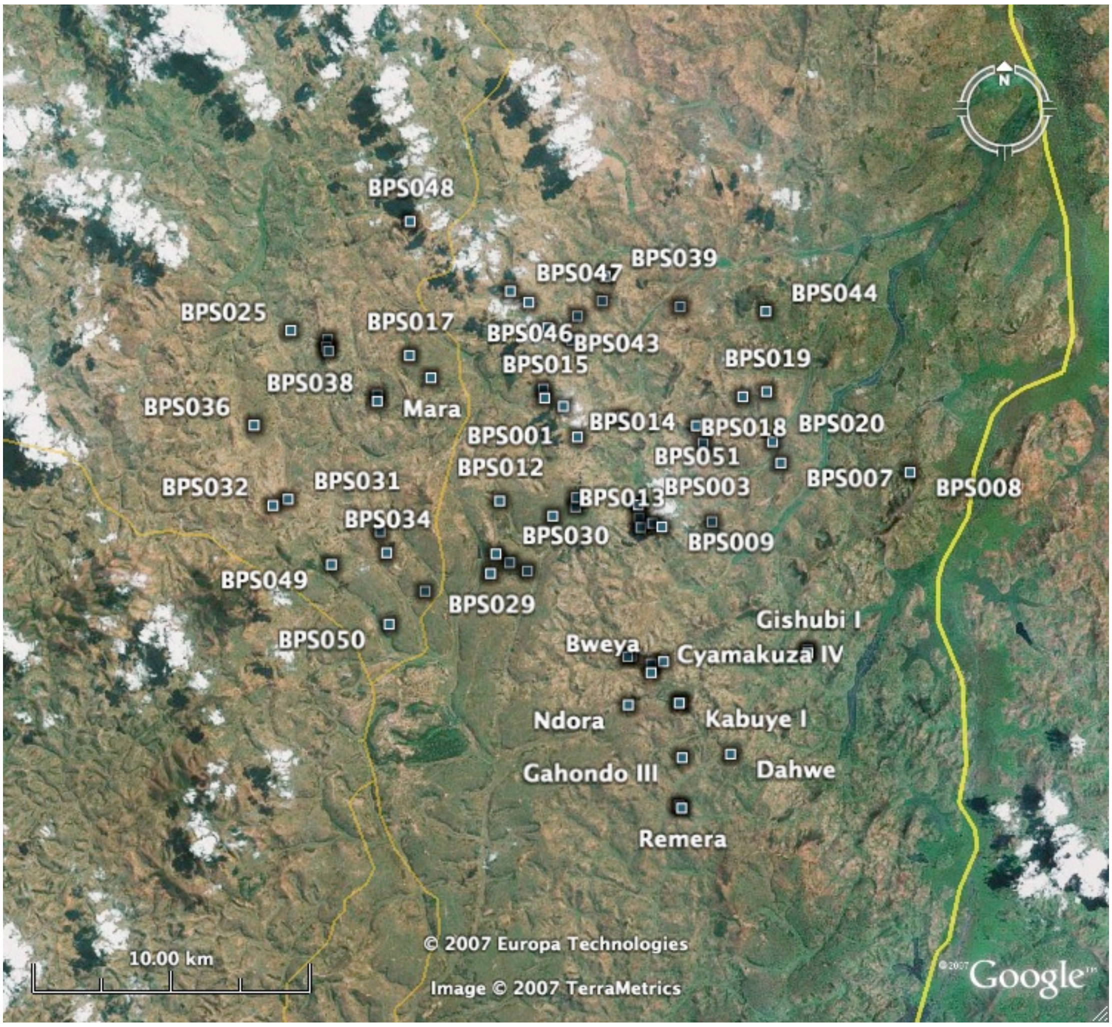

Fig. 6.2 Satellite image showing total sites identified in southern survey zone (new sites are shown with a BPS number and previously published sites are shown with a settlement name)

The landscape in the southern survey zone is less dramatic than the central and northern survey zones but still varies considerably, fluctuating 400m between the highest hilltop and lowest river valleys. Despite this most hillsides were traversable by foot and this allowed for good coverage of the survey zone. A 15 x 15km survey zone was established immediately north of the area of intensive work undertaken by Grunderbeek et al. (1983) and Van Noten (1983) in order to maximise the potential recovery of comparable site data. Unfortunately the survey area could not be extended to encompass the more riverine region to the east because this area is next to the border with Burundi and was still suffering from rebel incursions at the time of the survey. With the exception of BPS008, which we were led to by an informant we did not enter this area.

The southern survey found that sites were well distributed across the zone with an almost universal preference for hillsides and hilltops. Sites were not found in the wet lowest altitude environments, which occur between the hills at approximately 1400m above sea level. However, the majority of sites are in close proximity to these locations. The survey in the southern zone identified seven new sites with Early Iron Age material (Fig. 6.3) and re-identified nine previously published sites in the southern region, including Nyirankuba, Mara, Bweya, Cyamakuza, Ndora, Gishubi, Gahondo, Dahwe and Remera (Hiernux and Maquet 1957; Nenquin 1967a; Van Noten 1983). These sites were identified by the presence of Urewe ceramics, and all except one, BPS020, were found in association with iron production remains. The results show a wide distribution of sites, for example, BPS020 and BPS002 are near large rivers, BPS030, BPS035 and BPS050 near smaller rivers and BPS036 and BPS024 in higher altitude drier zones. The site elevation shows more conformity with seven out of eight sites ranging from 1711m to 1753m above sea level (Fig. 6.4). This fits well with the evidence from the previously published sites to the south, which were all found on or close to hilltops. Van Grunderbeek and Van Noten's sites show a preference for lower altitudes than those found during the present survey but this is not unexpected as the average hilltop altitude drops considerably to the south.

Fig. 6.3. Satellite image showing sites with Early Iron Age material identified in the southern survey zone

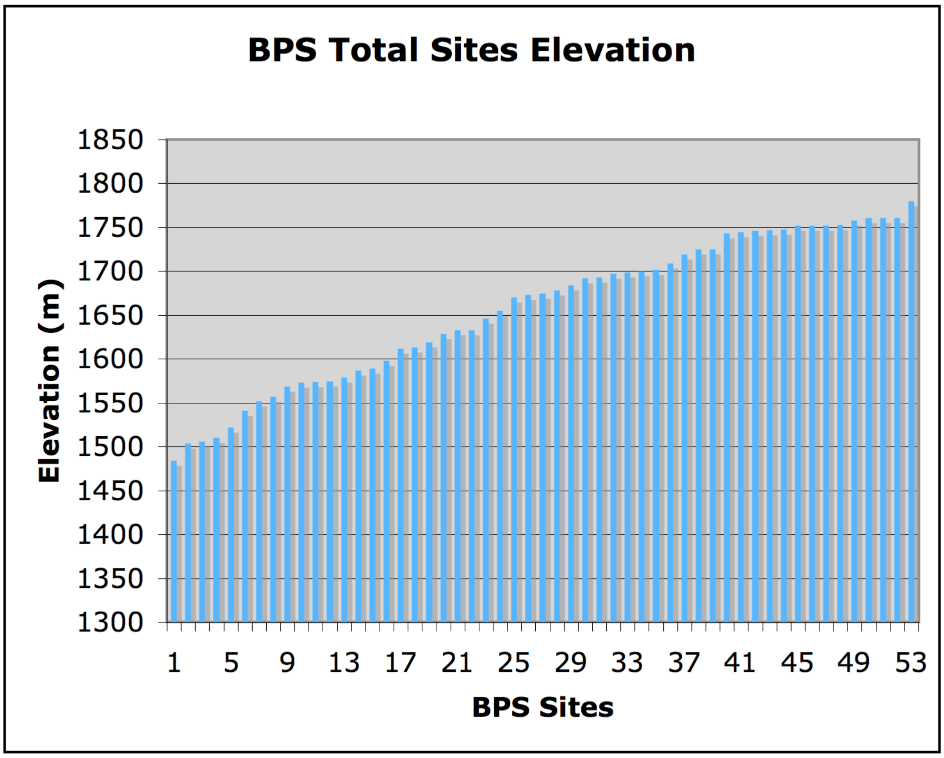

Fig. 6.4. Graph showing total site elevation above sea level for the southern survey zone

The distribution of these early sites continues to support the claim that Urewe using peoples selected sites close to or on the highest points of hills (Van Grunderbeek et al. 1983 and Van Noten 1983 for Rwanda, and Maclean 1994/5 and Reid 1994/5 for Uganda). The survey considered the possibility that sites may not be visible or accessible at the bottom of the valleys being obscured by vegetation, swamps, rivers and later deposition. For these reasons every attempt was made to identify and explore exposed deposits in these locations. However, it is believed that these valley bottoms would have been more inhospitable in the Early Iron Age than they are today due to the presence of more dense vegetation and wetter climatic conditions. These areas have only recently begun to be cleared during modern times due to population and land pressures. Previously these valley areas would have been inhospitable due to diseases such as malaria and trypanosomiasis carried by flying insects that would have thrived in these waterlogged locales, suggesting that without clearance and drainage they may have been unsuitable for settlement. Thus, Early Iron Age habitation of these lower zones is unlikely, providing one reason why hillside and especially hilltop sites were preferred.

The survey identified thirty-seven new sites with Late Iron Age material and three previously published sites, Bweya, Cyamakuza and Gishubi (Nenquin 1967a; Van Noten 1983) in the southern zone. These were identified by the presence of roulette-decorated ceramics and all were found with iron production remains. Fourteen of these sites contained twisted-string roulette-decorated ceramics (Fig. 6.5), thirty-nine knotted-strip roulette-decorated ceramics (Fig. 6.6) and thirteen sites contained both. Whilst many more sites with Late Iron Age ceramics were identified than sites with Early Iron Age ceramics there was no drastic departure in site location, although it appears from the site elevation data (Fig. 6.7 and Fig. 6.8) that lower altitude sites began to be exploited. These sites are not located within the lower altitude region to the south of the survey zone and reflect a new phase of exploitation lower down the slopes.

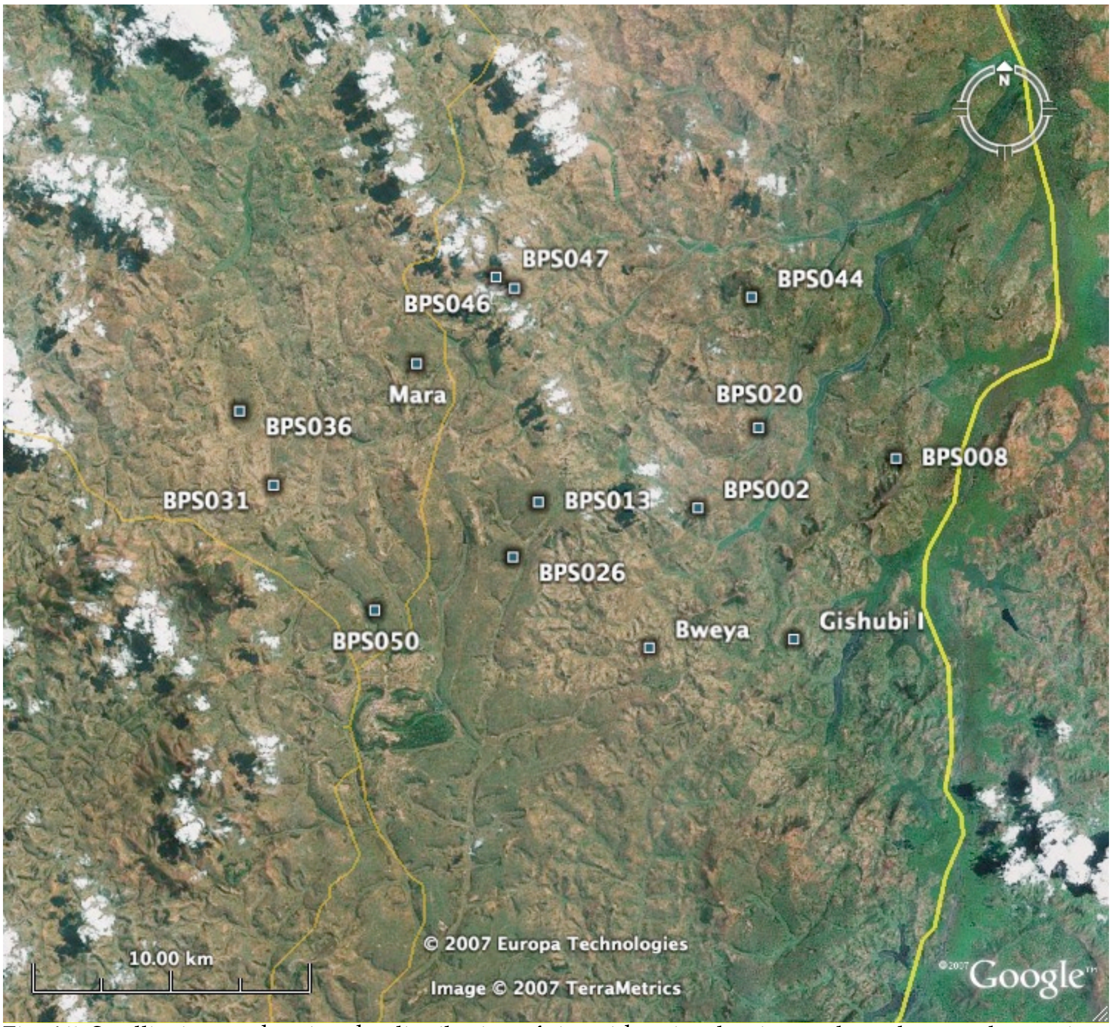

Fig. 6.5. Satellite image showing the distribution of site with twisted-string roulette-decorated ceramics in the southern survey zone

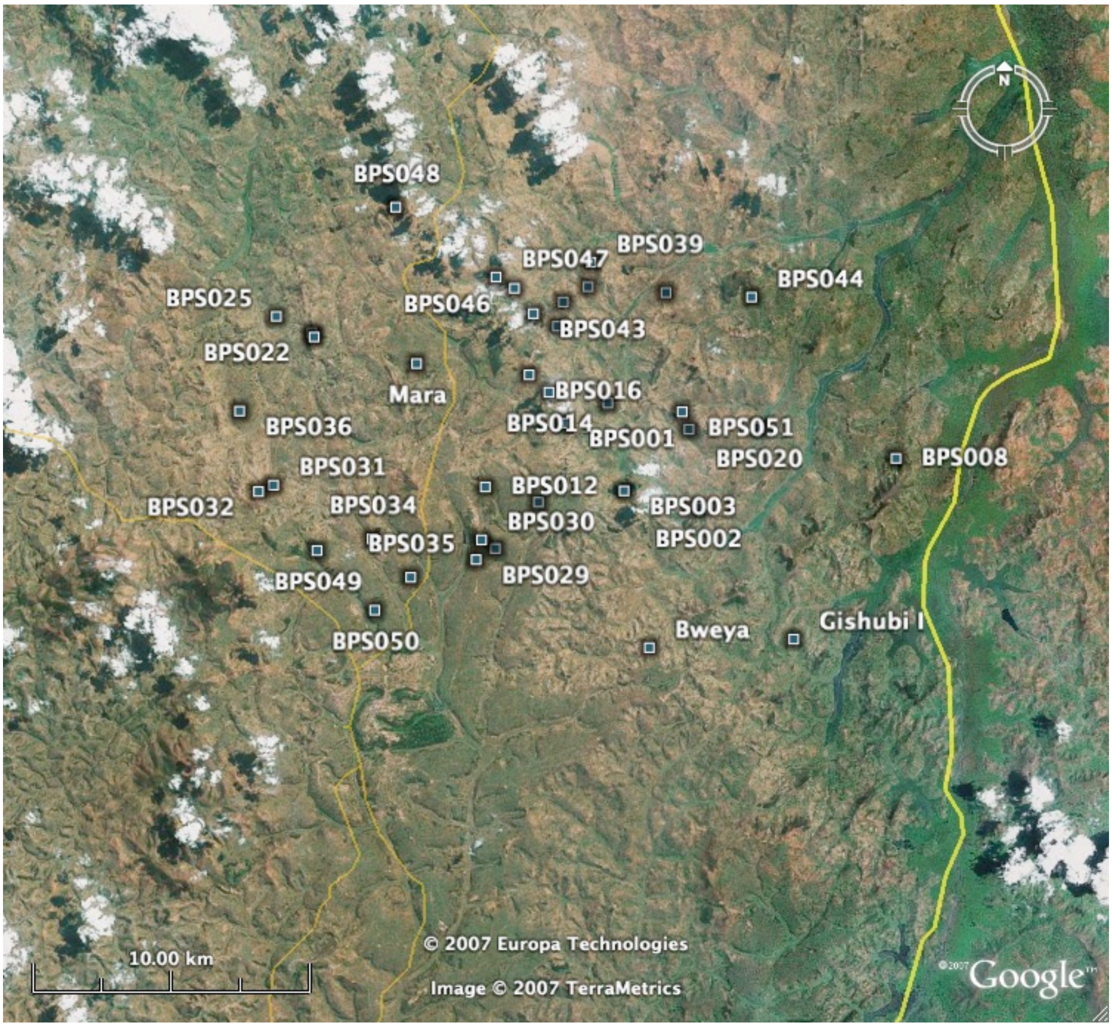

Fig. 6.6 Satellite image showing distribution of sites with knotted-strip roulette-decorated ceramics identified in the southern survey zone

A significant element of the survey in all three regions was the relocation of previously published sites. This was important because it enabled the re-assessment of known archaeological resources and the establishment of more accurate and precise location data for these sites than was achievable in the 1970s when they were last visited. It was believed that this location data could produce a comparative resource and that any surviving archaeological deposits could be re-excavated in order to supplement the material recovered from excavations at newly identified survey sites. The relocation survey was particularly time consuming in the southern survey zone because this area has received the most archaeological attention in Rwanda and subsequently has produced the most sites. In total the survey attempted to relocate fifteen sites and successfully located ten of them.

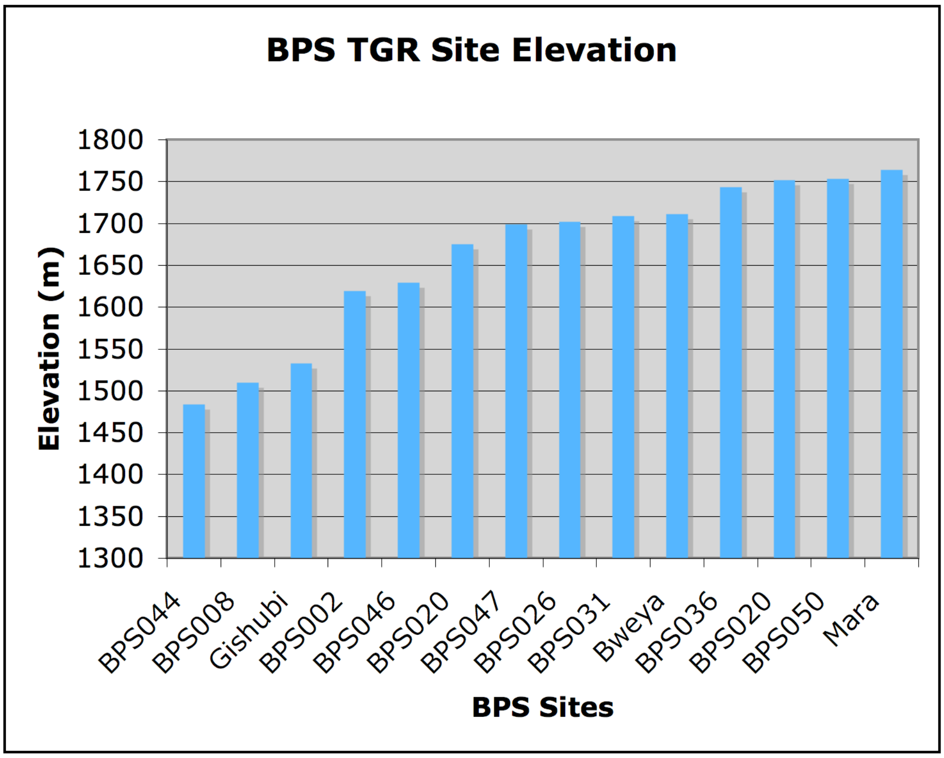

Fig. 6.7 Graph showing site elevations above sea level for twisted-string roulette-decorated sites from the southern survey zone

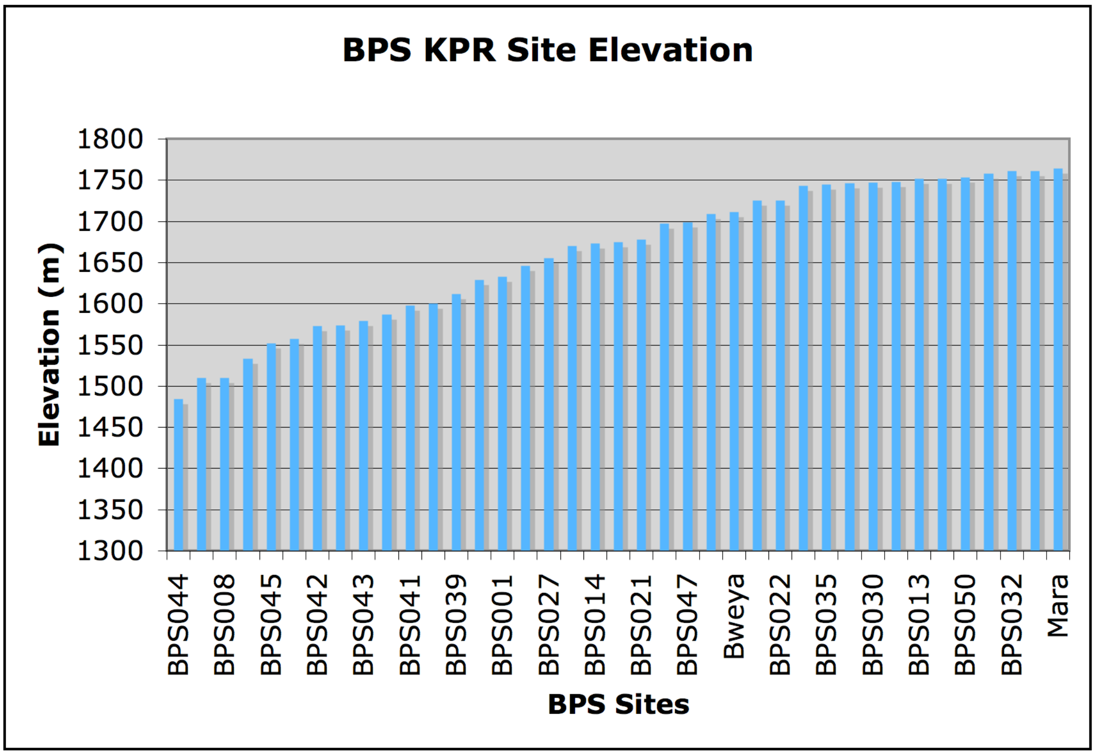

Fig. 6.8 Graph showing site elevations above sea level for knotted-strip roulette-decorated sites from the southern survey zone

Survey Summary

The southern survey has made a significant empirical contribution to our knowledge of archaeological sites in southern Rwanda. Whilst these results are clearly subject to biases associated with the preservation and visibility of site data and methodological limitations (see Chapter 5 section 5.3), the results support Van Grunderbeek et al.'s (1983) established site location model (see Chapter 4 section 4.8). Sites continue to be found located on or just below hilltops in a range of areas, and whilst they are not constrained to riverine locations, rivers are always close by, as is the character of the landscape.

The southern survey results are summarized below:

- There is an increase in site density between the Early Iron Age and the Late Iron Age.
- There is no drastic change in site location, but sites begin to appear further down-slope.

This situation may be a response to the presumed increase in population density associated with the development of more specialized economies and the rise of the kingdoms in the second millennium AD (see Chapter 4 section 4.8). This shift may also reflect the slow clearance of lower altitude bush, creating more space and reducing the potential for insect-borne disease. The high proportion of iron smelting remains probably reflects a bias in survey identification. However, this is also a historically important area for iron smelting (see Chapter 4 section 4.6) and thus it is not surprising that iron slag is commonly found at archaeological sites here.

6.2 Southern Excavation Results

In the southern zone test-units were dug at eight sites, including four newly identified sites - Kamana/Mugogwe (BPS001), Kabusanze (BPS036), Kamambuye (BPS040) and Mpinga (BPS050) - and four previously published sites - Gahondo, Cyamakuza I and II (Van Grunderbeek et al. 1983; Van Noten 1983), & Nyirankuba (Hiernaux and Maquet 1960; Nenquin 1967a) (Fig. 6.9). These sampled a range of surface assemblages and environments. However, only one of the sites, Kabusanze, preserved any significant sub-surface archaeological deposits, other than furnace bases, which are being investigated as part of a separate PhD on iron-smelting conducted by Jane Humphris.

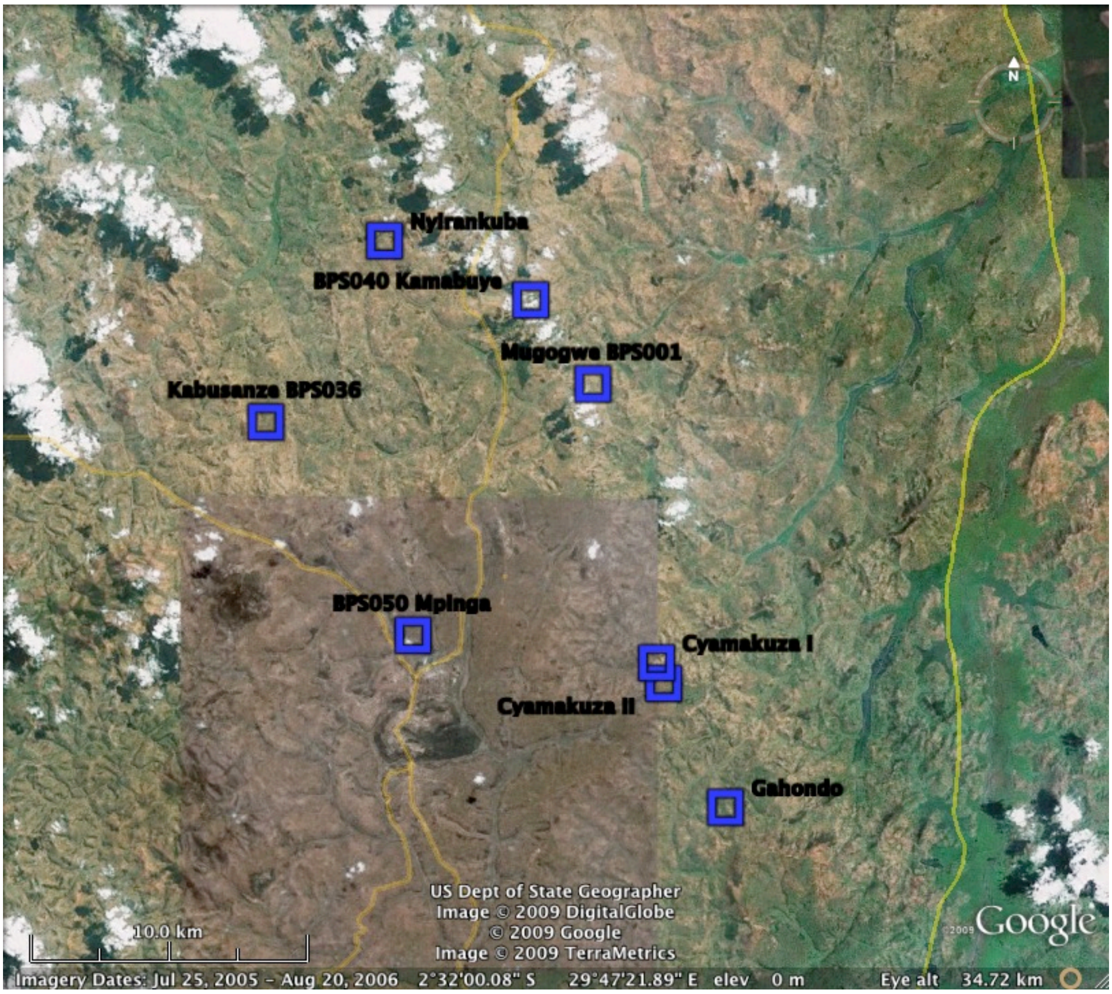

Fig. 6.9 Satellite image showing the excavated sites from the southern survey zone

The unsuccessful test-units are outlined here below:

- Mpinga, BPS050 (southing 02 34.42.1, easting 029 44.33.4 and elevation 1753m) was identified during survey by a collection of surface Urewe pottery, slag and furnace bases. Three 1x1m test-units were excavated to 0.3m, 0.4m and 0.5m. All encountered sterile clayey-silt deposits and were discontinued.
- Kamabuye, BPS040 (southing 02 28.09.6, easting 029 48.55.3 and elevation 1551m) was identified during survey by the presence of two possible smithing pits in the road and a surrounding scatter of Late Iron Age roulette-decorated ceramics. Two test-units were excavated to 0.3m and 0.4m before finding bedrock. No finds were recovered from the test-units.
- Kamana/ Mugogwe, BPS001 (southing 02 30.77.9, easting 029 48.04.4 and elevation 1633m) was identified during survey by large quantities of slag and Late Iron Age roulette-decorated ceramics eroding out of the road. 1x1m and

1x3m test-units were dug to a depth of 1m and 0.6m respectively. However, only modern pottery and occasional slag were encountered in heavily disturbed cultivated soils.

- At Gahondo (southing 02 38.03.8, easting 029 50.40.0 and elevation 1616m), a previously published site (Van Grunderbeek et al. 1983; Van Noten 1983) with early furnaces, three 1x1m test-units were excavated. All encountered sterile deposits to a depth of approximately 0.2m before finding bedrock.
- At Cyamakuza I (southing 02 35.14.4, easting 029 49.19.0 and elevation 1659m) four test-units were dug to a depth of 0.05 to 0.25m, which only encountered sterile orange clay above bedrock.
- At Cyamakuza II (southing 02 35.38.8, easting 029 49.27.5 and elevation 1700m) two test-units were dug to 0.5m and 1m but were stopped before reaching bedrock as they only encountered sterile orange clay. Cyamakuza is a previously published site and is well known for its historical and archaeological associations with iron production (Van Grunderbeek et al. 1983; Van Noten 1983).
- Nyirankuba (Southing 02.27 and Easting 29.44) was previously found to preserve iron slag and Urewe ceramics at the surface (Hiernaux and Maquet 1960; and Nenquin 1967a). Site survey here recovered two Urewe sherds and a 2x1m test-unit was excavated to a depth of 1m before it was abandoned because only sterile cultivated soils were encountered in a heavily disturbed area. Despite intensive survey in the surrounding hills no other Early Iron Age material was recovered.

6.3 Kabusanze (BPS036)

Excavations took place at Kabusanze in Huye District, Rwanda from the 17/08/07 to 31/08/07. The site is located at southing 02.30.32.3, easting 029.41.40.6 with an elevation of 1751m. The site was originally identified during survey by the occurrence of a thin scatter of Urewe pottery and small blocks of iron slag across the hilltop and was assigned the code BPS036. Upon our return to the site during the second fieldwork season a concentration of Urewe pottery was found and two test-units, A and B, were located over it (Fig. 6.10). Units A and B began as 2x1m trenches but during the course of the excavations both were extended and completed as 3x2m test units. Unit A was extended twice so that a number of pit features could be better exposed and excavated. Unit B was extended to try to expose any potential neighbouring archaeology in an otherwise barren area. Despite the unit B extensions, no significant archaeological remains were encountered except a shallow mixed cultivation layer at the surface that contained both Early Iron Age Urewe ceramics and Late Iron Age roulette-decorated ceramics. Beneath this deposit at 0.2m a more compacted, sterile, reddish-brown, clayey deposit was encountered (Fig. 6.11). Excavations proceeded into this sterile layer to ascertain its nature and to find a secure natural deposit. The excavations were also extended to the east to remove the mixed surface deposit and reveal any archaeological features cut into the clay. The extensions revealed no archaeological deposits and natural gravels were encountered in unit B at a depth of 1.9m. Due to the lack of any significant archaeology in unit B, and its extensions, it was abandoned and work continued at unit A where a variety of significant features were identified.

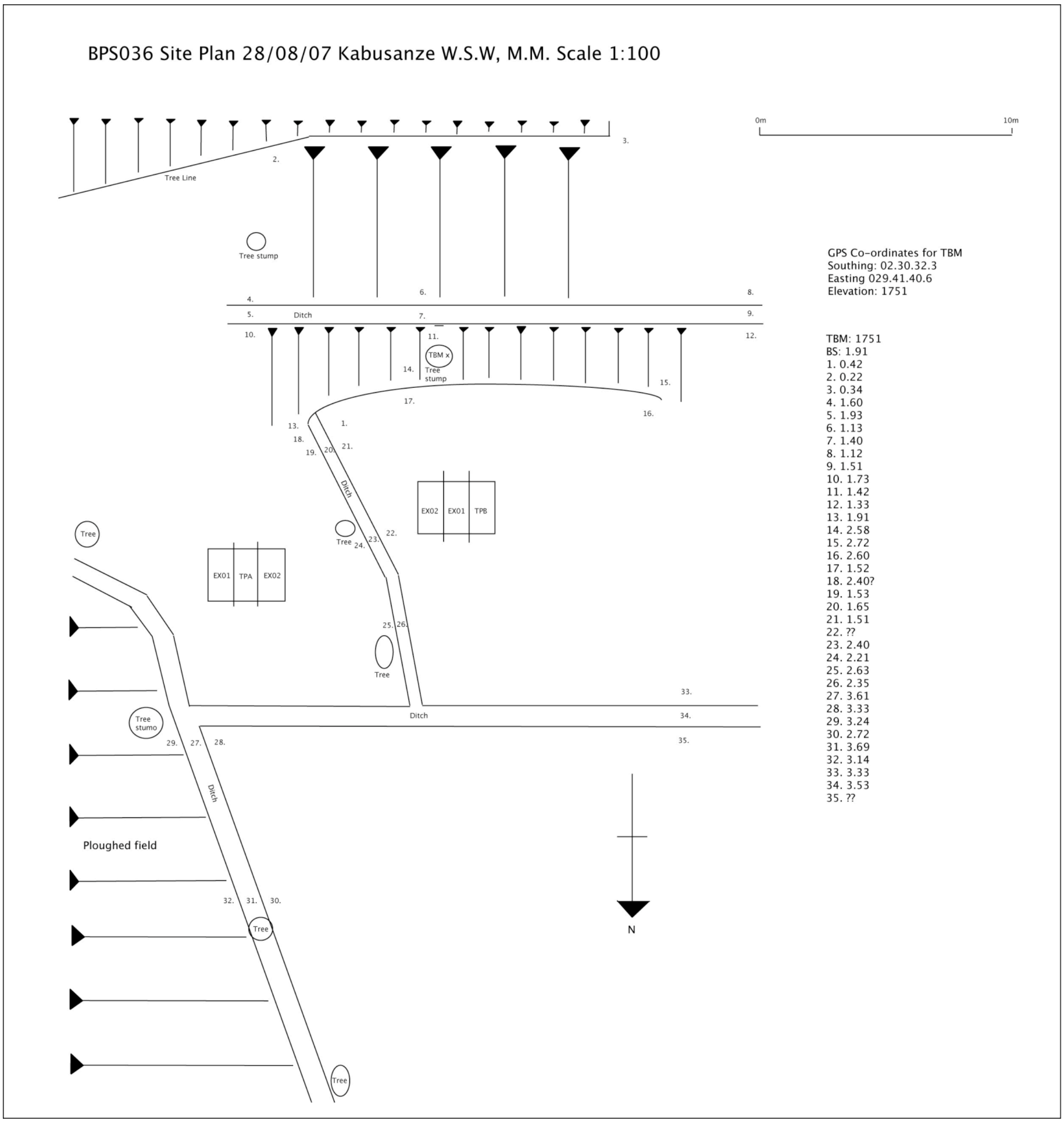

Fig. 6.10 Illustration showing site plan of Kabusanze, showing test excavation units A and B

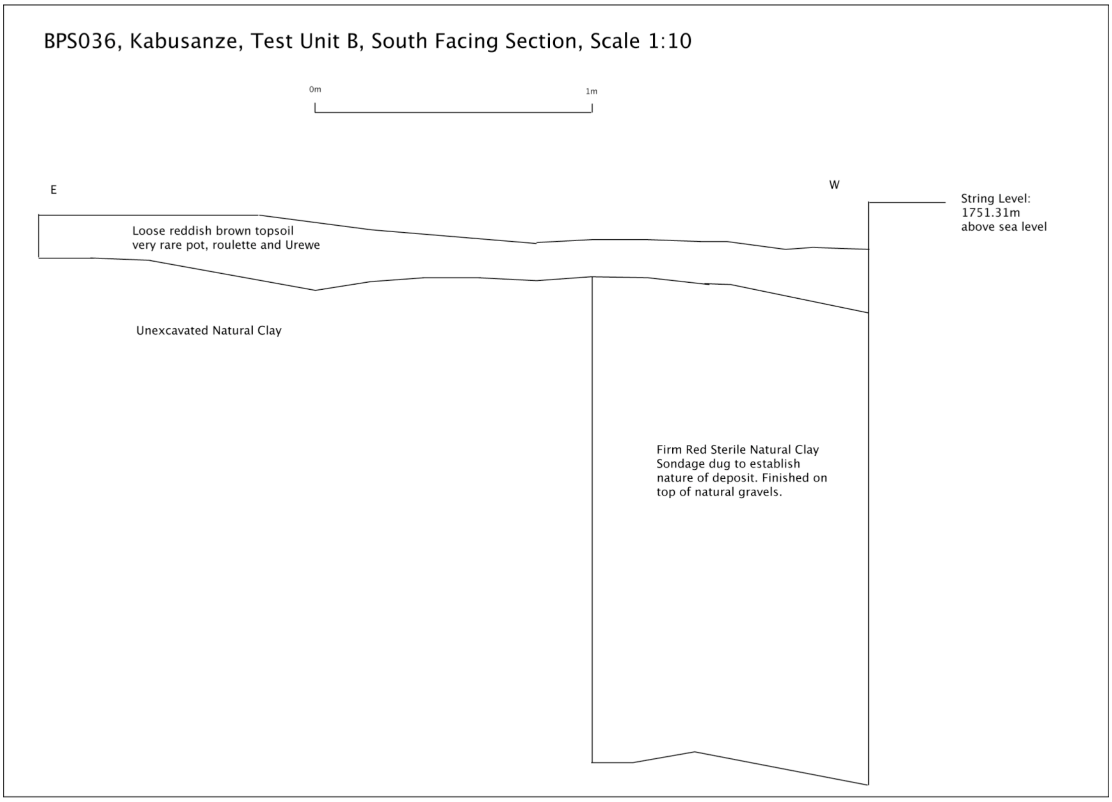

Fig. 6.11 Illustration showing the south facing section of test-excavation unit B at Kabusanze

The excavations at unit A were extended to the east and west to further expose two pits with Urewe pottery (Fig. 6.12) and a burial with Urewe pottery, a partially represented adult skeleton and a neonate skeleton, iron objects, bone beads, a cowrie shell and charcoal. The burial was of particular importance. Only one other Urewe burial has ever been reported in the region (Misago & Shumbusho 1992) and whilst most of the elements were similar (Misago pers. comms. 2007) the presence of a cowrie shell is the first evidence of long distance exchange in an Early Iron Age central African context. The recovery of iron objects also presents a rare opportunity to analyse the end product of the early iron-production process instead of simply the waste products (the results of the burial excavation are discussed separately in this section and are contextualised separately in Chapter 9). Ceramic analysis of the recovered assemblage from unit A suggests that this is an Urewe ceramic using site. Beneath the modern surface disturbance the assemblage was exclusively confined to Urewe ceramic diagnostic features such as bevelled rims, incised decoration and restricted fabric types, which suggests that this can be treated as a single component site. This is supported by the three radiocarbon dates recovered (Fig. 6.13), one from each of the pit features that are broadly consistent and place the activities at this site within the middle phase of Urewe using communities in Rwanda.

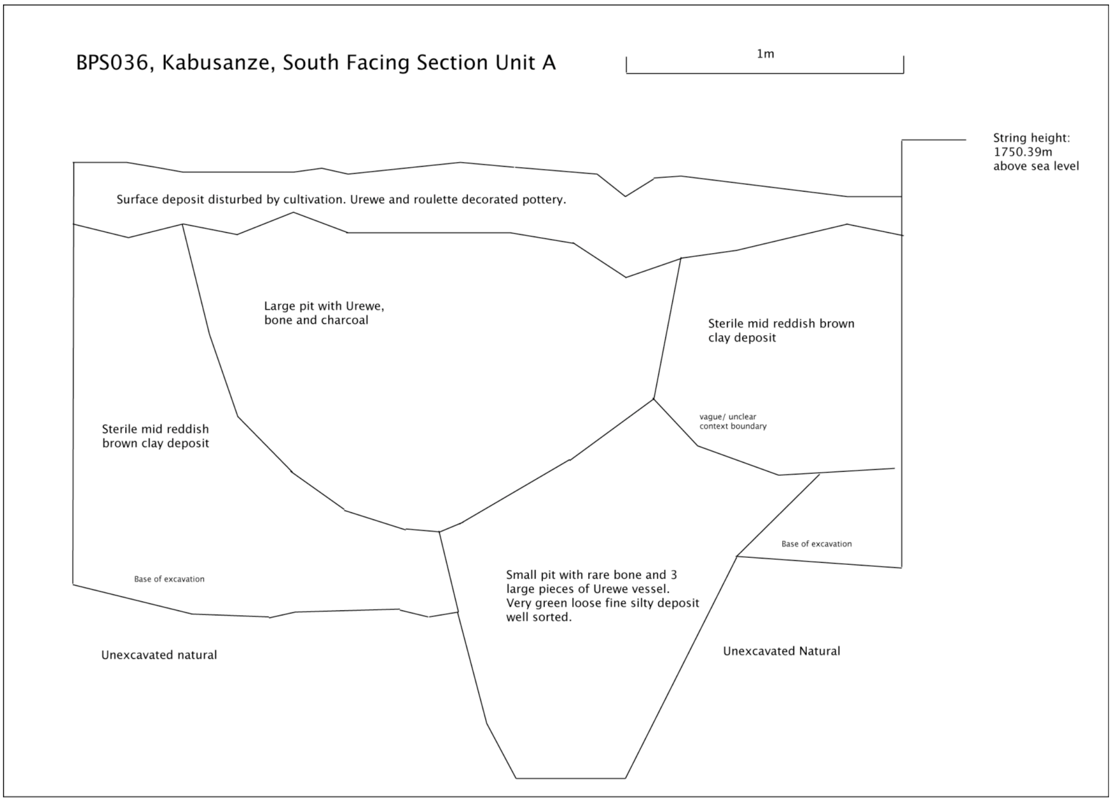

Fig. 6.12 Illustration showing the south facing section of Unit A, Kabusanze

Sample No.	Context	Date bp	Calibrated date (2 sigma)
OxA-19517	Large Pit	1610 ± 26 bp	AD 425 to 573
OxA-19518	Burial Pit	1630 ± 26 bp	AD 417 to 554
OxA-19583	Small Pit	1694 ± 37 bp	AD 263 to 538

Fig. 6.13 Table showing the radiocarbon dates from Kabusanze

The first context encountered in unit A was a mixed, cultivated, surface soil containing both Urewe and roulette-decorated pottery. Beneath this, cut into the surrounding sterile clayey-silt, was a large pit feature that had been truncated by the cultivation above. This pit fill contained occasional Urewe pottery, rare and fragmentary poorly preserved bone, occasional bone beads and charcoal. The cut associated with this feature truncated the small pit and the burial pit beneath. The relationship between the small pit and the large pit above can be seen in section. Unfortunately the relationship between these pits and the burial was not clearly preserved in section and was destroyed during excavation as the large pit was excavated.

The burial was only identified during the later stages of the excavation after the large pit had been removed and the excavations began to reach the natural gravels. Like the small pit, the burial was most easily identified as a feature cut into the natural gravel. The fill of the burial pit was very distinct, being very fine, well-sorted, reddish brown, with green lenses, soft clayey-silt. The feature was only identified as a burial as excavations proceeded to reveal two partially preserved/represented skeletons and grave goods. Due to issues with the local community and the potential for vandalism the grave had to be excavated within a singe day because the exposure of a human burial of any antiquity in post-genocide Rwanda is problematic.

The skeleton and grave goods were exposed then planned in-situ and photographed before being carefully removed. The burial produced four iron objects, bone beads, one fragment of a cowry shell, a small complete Urewe vessel along with a number of almost complete much larger Urewe vessels (these are described in detail in section 6.7).

6.4 Ceramic Analysis

Following the methodology set out in Chapter 5, the analysis of the ceramic assemblage was separated by technology and morphology.

Technological Profile

Seven fabric types were identified within the assemblage from the three pit features encountered at Kabusanze unit A, B1 – B7. The prefix here refers to Butare the local administrative centre and is the prefix for all nomenclature in the southern region. The properties for each fabric are listed below (Fig. 6.14):

Fabric	Physical properties and effect	Decoration	Attribution
B1	Dark reddish-black, unoxidised firing, soft fine grained matrix, smooth texture, medium angular quartz inclusions (<5%) 1-5mm, sub-angular mica inclusions (<5%) <1mm.	Incised	Urewe
B2	Grey, oxidised firing, smooth texture, rare angular mica, quartz and grog inclusions (<5%) <2mm	None	Unknown
B3	Reddish brown, oxidised firing, regular sub-angular grog inclusions (10%) <5mm, rare angular quartz and mica (<5%) <5mm.	Incised	Urewe
B4	Grey to black, mixed oxidisation, with poorly sorted angular quartz inclusions (5%) 1-6mm and rare sub-angular mica inclusions (<5%) 1mm.	Incised	Urewe
B5	Orange, oxidised firing, coarse ware with rare angular to sub-angular quartz and mica inclusions (<5%) <2mm	Incised	Urewe
B6	Yellowish orange, uneven oxidisation, frequent poorly sorted angular quartz inclusions (10%) 1-6mm and occasional sub-angular mica inclusions (5%) <2mm.	Incised	Urewe
B7	Greenish-grey with rare sub-angular burnt stone inclusions (<5%) 3-5mm, with oxidised firing	None	Unknown

Fig. 6.14 Table showing Kabusanze fabric categories

The total weight of sherds identified to fabric group from the three pit features came to 7.85kg. Whilst seven fabric groups were identified within this, the identified assemblage was dominated by B1 (83%), with B2 (6%) the next most frequent, followed by B6 (5%) with the remaining four fabric groups making up the difference (6%). This dominance by B1 is repeated when the assemblage from the large pit is considered separately (Fig. 6.15):

Fabric	Weight kg	%
B1	2.760	69.96
B2	0.425	11.45
B3	0.005	0.12
B4	0.150	3.8
B5	0.210	5.32
B6	0.365	9.25
B7	0.030	0.76
Total	3945	100

Fig. 6.15 Table showing fabric weights and percentages for the large pit, Kabusanze

In the assemblage from the burial pit (2.83kg) B1 is dominant, accounting for 99.46% with B7 making up the remaining 0.54%, and B1 was the only fabric group recovered from the small pit ceramic assemblage (0.35kg).

The ceramic assemblage from Kabusanze suggests a strong preference for a single fabric type, and thus a single potential clay source. This can be seen especially clearly when deliberate interment is involved as in the burial. However, the analysis shows that there is room for variation, experimentation and/or choice as demonstrated by B2 and B6, but it must be noted that some of these fabric groups have been assigned on the basis of very few sherds, such as B3 and B7, and these may not represent separate fabric groups but anomalies or idiosyncrasies in the other better represented fabric groups.

Morphological Profile

Sixty-two reconstructable vessels were recovered from the total assemblage from unit A. Three major vessel forms dominated this assemblage: globular everted neck jars (36.06%) (Fig. 6.16), open bowls (21.31%) (Fig. 6.17) and hemispherical bowls (18.03%) (Figs. 6.18 and 6.19) and to a lesser degree: flared mouth bowls (9.83%), shouldered closed bowls (8.19%), closed bowls (4.91%) (Fig. 6.20), beakers (1.63%) and closed jars (1.63%). This ratio is in contrast to Leakey et al's (1948) Urewe typology and Ashley's (2005) work from the northern shores of Lake Victoria, and with Van Grunderbeek's (1988) 60:40 ratio of jars to bowls from Rwanda. However, the vessel range is consistent across all these studies.

Fig. 6.16 Illustration showing a Classic Urewe jar from Kabusanze, with 3 bevels on the rim, incised cross-hatching below the rim and a incised lines and circular motifs on the body (fabric is B1)

Fig. 6.17 Illustration showing three Classic Urewe open bowls from Kabusanze with multiple rounded bevels on the rim and incised decoration on the rim and beneath it

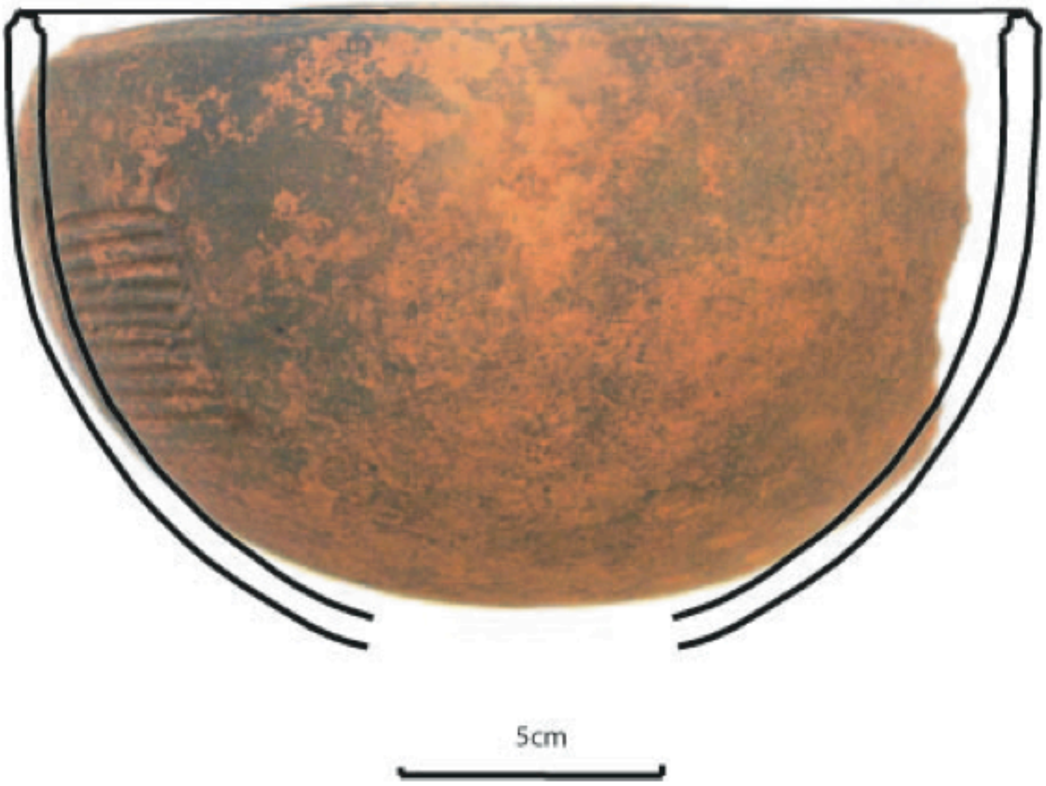

Fig. 6.18 Illustration showing Classic Urewe hemispherical bowl from Kabusanze with an incised rectangular motif on the body of the vessel

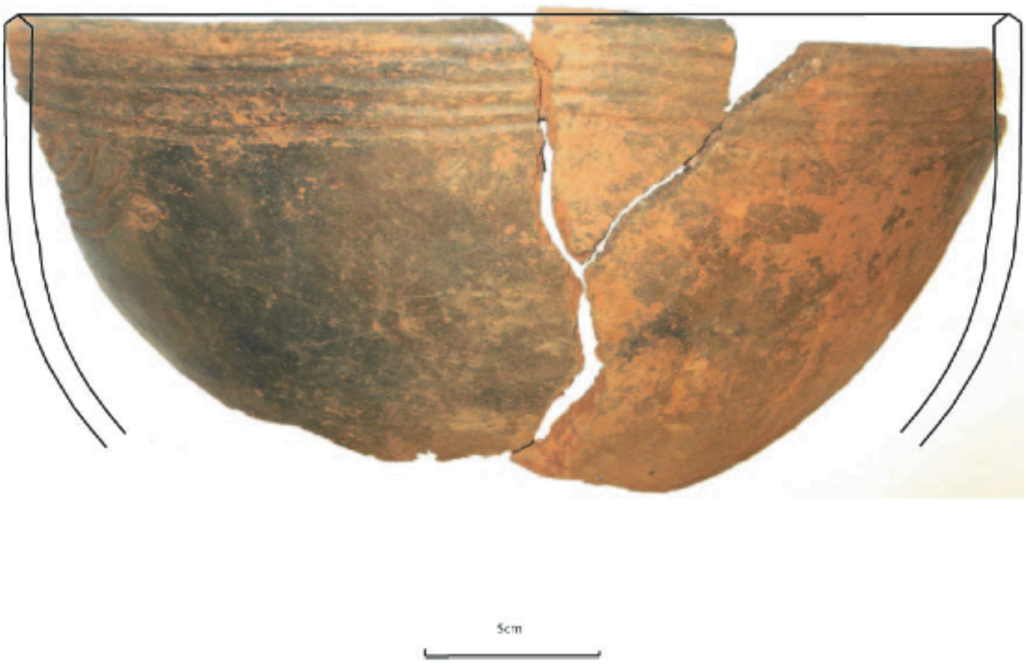

Fig. 6.19 Illustration showing a Classic Urewe hemispherical bowl from Kabusanze with parallel incised horizontal bands

Fig. 6.20 Illustration showing a Classic Urewe collared, closed bowl from Kabusanze with incised cross hatching around the neck and circular motifs running around the body of the vessel.

	B1	B2	B4	B5	B6	B7
Everted neck jars	69.5%	4.5%	4.5%	0%	13%	8.5%
Open bowls	85%	15%	0%	0%	0%	0%
Hemispherical bowls	73%	9%	9%	9%	0%	0%
Flared mouth bowls	66%	0%	33%	0%	0%	0%
Shouldered closed bowls	100%	0%	0%	0%	0%	0%
Collared bowl	66%	33%	0%	0%	0%	0%
Beakers	100%	0%	0%	0%	0%	0%
Closed Jars	100%	0%	0%	0%	0%	0%

Fig. 6.21 Table showing distribution of forms relative to fabrics from Kabusanze

	B1	B2	B4	B5	B6	B7
Jars	69.5%	4.5%	4.5%	0%	13%	8.5%
Bowls	79.5%	10%	8%	2.5%	0%	0%

Fig. 6.22 Table showing simplified distribution of forms relative to fabrics Kabusanze

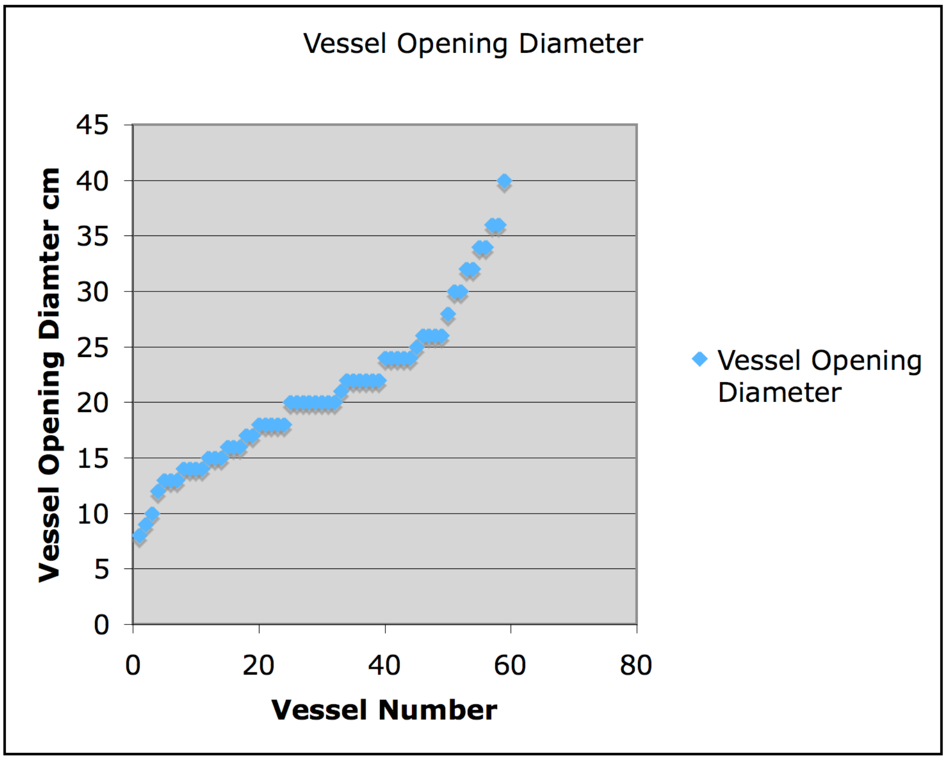

Fig. 6.23 Graph showing the range and frequency of reconstructable vessel openings, Kabusanze

Combining the form distribution with the fabric groupings (Figs. 6.21 and 6.22) shows the prevalence of the B1 fabric group in all of the forms represented which continues to suggest that this fabric was most available, effective or preferred. The vessel opening diameter range (Fig. 6.23) shows that whilst openings enjoyed a broad range from 8cm to 40cm, they were most commonly 15-25cm, accounting for approximately 50% of all reconstructable vessels.

As might be expected from an Early Iron Age assemblage, bevelled rims (88%) dominate the total assemblage from the three pit features at Kabusanze, with simple rounded (8%) and squared rims (4%) making up the difference (Fig. 6.24). However, following Ashley (2005: 172), the rim categories have been sub-divided into simple and complex, based on the presumed effort expended during their production, allowing a more nuanced pattern to be elucidated. Ashley (2005: 173) separated simple bevelled rims (2 bevels), which require only a basic technique of thumb and forefinger to be produced, from the more complex multi-faceted bevelled rims (3 or more) in order to give a more "textured picture of variability" for the three main vessel types.

	Simple bevel	Simple Rounded/ Square	Complex bevel
Jar	5%	0%	95%
Open Bowl	54%	23%	23%
Hemispherical Bowl	20%	10%	80%

Fig. 6.24 Table showing rim complexity combined with vessel form, Kabusanze

When this approach is applied to the results from Kabusanze (Fig. 6.24) it suggests that a much higher investment of time was spent on the jars than on the other vessels with the least investment spent on the open bowls. The distribution presented in this table suggests a much greater degree of standardization in jars, where rims are always bevelled, than seen in the other vessel types. This is directly opposite to Ashley's (2005: 170-175) findings where jars favour the less complex options.

	Plain	Horizontal Incised	Vertical Incised	Oblique Incised	Circular Incised	Triangular Incised	Cross Hatched	Herring bone
Jar	1	1	2	5	2	1	21	0
Open Bowl	9	3	0	1	0	0	0	0
Hemispherical Bowl	2	2	0	1	1	0	0	4

Fig. 6.25 Table showing distribution of decoration relative to vessel form, Kabusanze

The frequency and distribution of decorative styles relative to form show some clear preferences (Fig. 6.25). Again in this assemblage jars consistently receive the most decorative attention with 97% of examples being decorated as opposed to only 31% of open bowls, and jars demonstrate the most variety of decorative styles. There is also a clear preference for cross-hatching in jar decoration (62%), with this style not seen on either of the other form types. Whilst there is a more even distribution of decoration across the hemispherical bowl types, the open bowls again show the least effort invested with the majority only displaying simple horizontal incisions (23%). Whilst this again mirrors the level of investment in rim relative to form it again is in contrast to Ashley's (2005) findings.

The position of decoration appears to be broadly evenly distributed over the vessel areas, with the exception of the interior and bases where there is no decoration recorded (Fig. 6.26). The only observable preference is the relatively high incidence of decoration on the necks of the jars. The differences observed between decorative locations on the bowls are not believed to be significant here due to the relatively small sample, which included only five decorated open bowls and ten hemispherical bowls.

	Lip	Neck	Body
Jar	9	18	14
Open Bowl	5	n/a	2
Hemispherical Bowl	4	n/a	6

Fig. 6.26 Table showing decorative location in relation to vessel form, Kabusanze

Comments

The majority of this assemblage appears to have been produced from a single clay source by a community of specialists sharing similar ceramic standards. This is implied by the overwhelming dominance and consistency of fabric group B1 and the stability in form relative to decorative investment seen in the jars. Most significant in this assemblage is the direct relationship observed in effort investment during forming production and decorative application. The jars are the largest and most elementally complex of the three main forms represented, they have the highest incidence of complex rims applied, and are the most frequently decorated of all the forms, suggesting an important social role, perhaps above that of the open and hemispherical bowls.

6.5 Zooarchaeological Analysis

There were no zooarchaeological remains recovered during the excavations at Kabusanze. Zooarchaeological remains are rare from Early Iron Age sites in Southern Rwanda despite this region receiving the greatest archaeological attention. The only Early Iron Age zooarchaeological sample that has been recovered is a single cattle tooth, excavated by Van Grunderbeek (1981) and identified by Gautier, which was radiocarbon dated by association with a 'related' furnace feature to the 4th century AD. Despite being broadly supported by the linguistic evidence (e.g. Schoenbrun 1998, discussed in Chapter 4 section 4.8), this find remains archaeologically isolated and potentially unreliable, being found so close to the surface, in an insecure context and not having been directly dated.

It is disappointing that Kabusanze did not preserve any zooarchaeological remains, as it restricts investigation into subsistence economy in the Early Iron Age in southern Rwanda. However, Kabusanze did reveal interesting empirical evidence of plant exploitation during this early period.

7.6 Palaeobotanical Analysis

Palaeobotanical samples were taken from each of the three pit features in unit A at Kabusanze. Analysis of the soil sample from the large pit identified two sorghum (*Sorghum bicolour)* charred seeds, and one *polygonaceae* (a wild flowering plant) and three *vigna* seeds (a wild legume). Analysis of the soil sample from the burial fill revealed one fragment of charred *polygonaceae* seed found in the fill above the body. Analysis of the soil sample in the small pit feature cut into the gravel identified a charred pearl millet (*Pennisetum glaucum*) fragment. The relatively small size of the palaeobotanical sample prohibits the statistical analysis of these finds and the generation of any secondary data. However, these finds make an important empirical contribution. These remains represent some of the earliest recovered cultivated domestic grains from eastern and central Africa and they are especially important as they have been found in association with secure archaeological features and are not simply from general archaeological deposits. The sample taken from the small pit is more significant because it came from an extremely well defined feature encountered at 2m depth, cut into the natural gravels and clay and thus is very secure with limited chance of contamination.

7.7 Burial

The burial contained two skeletons, a range of Urewe vessels and associated grave goods (Figs. 6.27 and 6.28) and these are described in detail below.

Fig. 6.27 Photograph showing plan view of adult burial and grave goods at Kabusanze (grave cut is approximately 1.5 in diameter)

Fig. 6.28 Photograph showing close up of adult burial and grave goods at Kabusanze (looking west), including the whole small pot, mandible and axis and broken Classic Urewe vessels

Human Remains

The human bones from the burial at Kabusanze were analysed by Dr Anna Clement at the Institute of Archaeology, University College London. The details of her analysis are included in Appendix 1 and they are summarised here.

There were two skeletons excavated from the burial at Kabusanze, an adult skeleton and a neonate skeleton. The adult skeleton was encountered within the burial pit cut into the underlying gravels, the neonate skeleton was encountered approximately 0.5m above the adult skeleton in the fill of the burial shaft. The large Urewe pit truncated the burial shaft above. Charcoal was encountered around the adult skeleton and a sample of this, found in association with the adult skeleton, was radiocarbon dated to c.400 AD, as were all the samples from Kabusanze (Fig. 6.13).

The adult skeleton was only partially represented with only parts of the upper skeleton present, including cranial and limited post-cranial elements: a cut mandible and maxilla (Figs. 6.29 and 6.30); and rib fragments, vertebrae, including the axis and the atlas, and the distal end and partial shaft of the right humerus, showed cut marks and a post-mortem fracture (Fig. 6.31).

Fig. 6.29 Photograph showing adult mandible and maxilla from Kabusanze (courtesy of Dr Anna Clement (UCL))

Fig. 6.30 Photograph showing adult mandible from Kabusanze , including missing molar and abscess beneath (courtesy of Dr Anna Clement (UCL))

Fig. 6.31 Photograph showing adult humerus from Kabusanze (courtesy of Dr Anna Clement (UCL))

In the absence of the pelvis and sufficient comparative dental data it was not possible to estimate the age of the adult skeleton at death to a high degree of precision. However, all of the teeth were fully erupted and were in wear suggesting that the individual was anatomically mature. The lack of a pelvis also hampered the attribution of a sex to the skeleton. Instead the mandible was analysed as an indicator of sex. Based on the size and robustness of the mandible the adult is considered to be a male.

The dentition not only preserved age evidence but also pathologies suffered by the adult. For example, the upper right incisor is present but rotted through the centre resulting in a large abscess at the apex of the root (Fig. 6.32), the lower left molar appears to have been lost due to a large abscess in the alveolar bone and several of the teeth show evidence of caries (dental decay) and infection, some of which has been suggested relates to poor nutrition in childhood.

Fig. 6.32 Photograph showing upper dentition from adult skeleton at Kabusanze, including rotten incisor and abscess (courtesy of Dr Anna Clement (UCL))

The lack of the remaining post-cranial skeleton is not believed to be from secondary burial or disturbance in situ. The burial was interred with a range of burial goods, in a deep burial pit, and was sealed above by an Early Iron Age pit dated to the same period. It is also not thought to be a preservation issue because the most robust post-cranial bones are totally absent whilst the ribs are preserved. Furthermore the cranial bones are very well preserved and localised preservation conditions within the pit could not have created these anomalies. Thus, it is believed that only select elements were interred, a suggestion which is supported by the cut marks on the mandible and humerus that indicate defleshing and decapitation, either at the time of death or post-mortem.

The neonate skeleton was well preserved and included most of the skeleton (Fig. 6.33). The age-at-death of the skeleton, based on the measurement of the petrous bone, tympanic ring and the long bones, is suggested to be around the time of birth, although it is possible that the neonate survived into the first few weeks of life. Unfortunately it is not possible to estimate a sex for the neonate because anatomical sex related changes do not occur until adolescence.

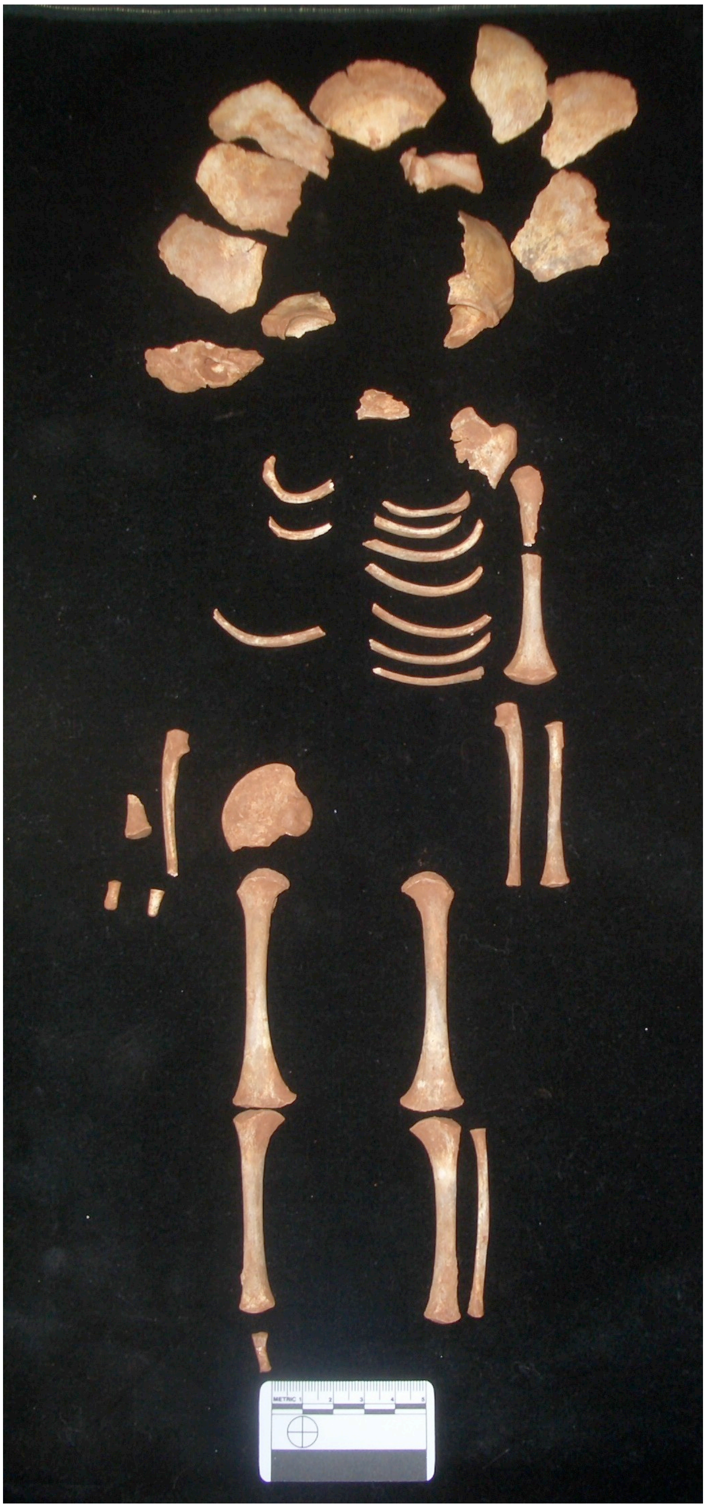

Fig. 6.33 Photograph showing the neonate skeleton from Kabusanze (courtesy of Dr Anna Clement (UCL))

Burial Pots

Although the ceramics from the burial have already been presented as part of the total assemblage analysis for the site, it is believed that they may be fruitfully analysed separately and that such analysis can be expected to produce socially meaningful results because these archaeological ceramics are the product of deliberate deposition, in a socially meaningful context.

The dominance of fabric B1 in the technological profile is again seen in the burial, accounting for ten out of the eleven reconstructable vessels, the only other fabric represented is B7. This represents a clear selection preference for the interred ceramics, B1 being the finest of all the fabrics. The morphological profile of the burial ceramics is varied and whilst jars are again in the highest frequency (four vessels) (Figs. 6.34 and 6.35) they are not overwhelmingly dominant as in the total assemblage. The remaining burial assemblage is made up of two shouldered collared bowls, two flared mouth bowls (Fig 6.36), one open bowl and one hemispherical bowl (Fig 6.37). There is also a small complete closed bowl (Fig 6.38). It is tempting to think of this as an almost complete 'ceramic set' or 'crockery set' used during the life of the deceased, although this of course is speculative. The rim types of the vessels are all bevelled, two examples - a jar and an open bowl display simple bevelled rims (2 bevels) and the remainder have complex bevelled rims (3-4 bevels). All of the vessels in the burial pit were decorated except for the open bowl, the jars had four incidents of incised cross-hatching, one incised circular motif, and one incised oblique application, the shouldered collared bowls both had incised circular motifs, the flared mouth bowls were incised with cross hatchings, and the hemispherical bowl was horizontally incised. These applications appear to be broadly consistent with those presented for the total assemblage and thus appear to be related to the forms selected for interment and are not of particular relevance to the burial. In summary, it seems that a complete range of forms, in the most common and finest fabric, were selected for interment as grave goods within the burial.

Fig. 6.34 Illustration showing a jar from the burial at Kabusanze with 4 bevels on the rim, crosshatching beneath the rim and triangular incised motifs below

Fig. 6.35 Illustration showing a Classic Urewe jar from the burial at Kabusanze, with 4 bevels on the rim, incised cross hatching beneath the rim, followed by bands of horizontal incised lines and an incised semi circular motif beneath

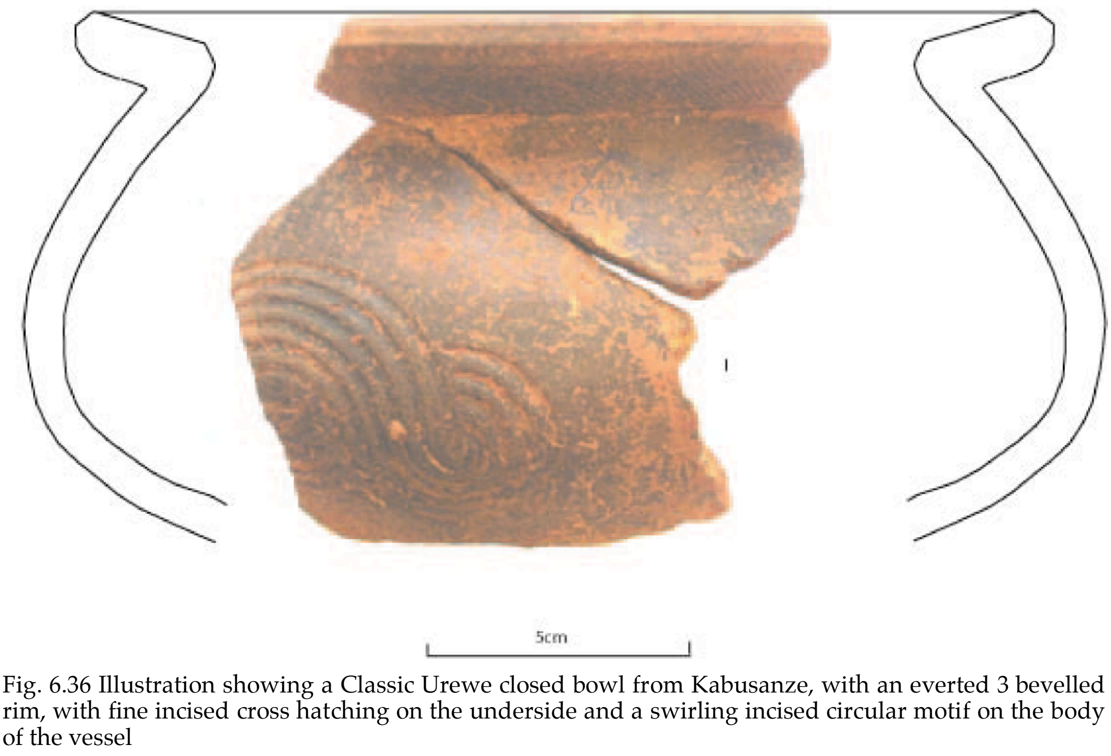

Fig. 6.36 Illustration showing a Classic Urewe closed bowl from Kabusanze, with an everted 3 bevelled rim, with fine incised cross hatching on the underside and a swirling incised circular motif on the body of the vessel

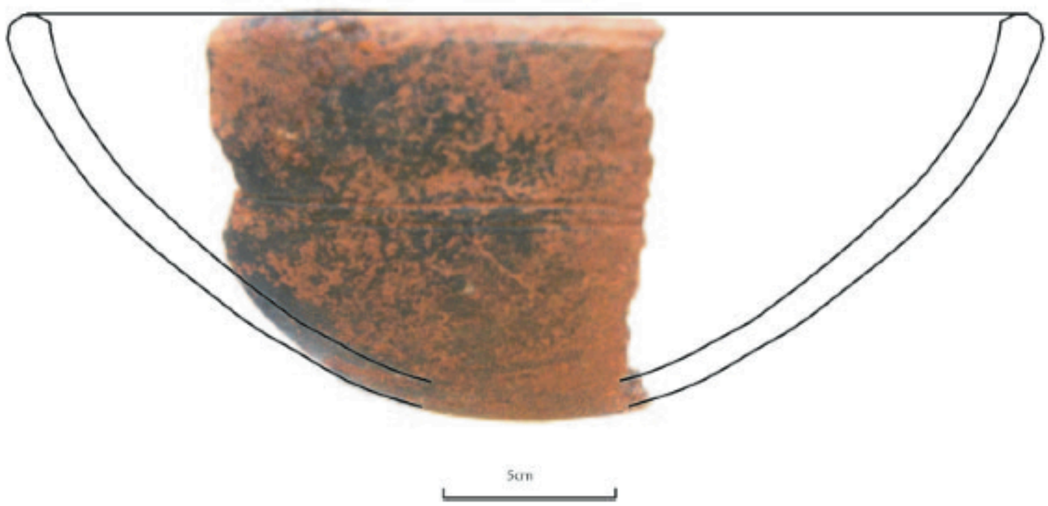

Fig. 6.37 Illustration showing a Classic Urewe hemisherical bowl from the burial at Kabusanze, with a 3 bevelled rim and 2 incised horizontal incised bands running around the middle of the vessel

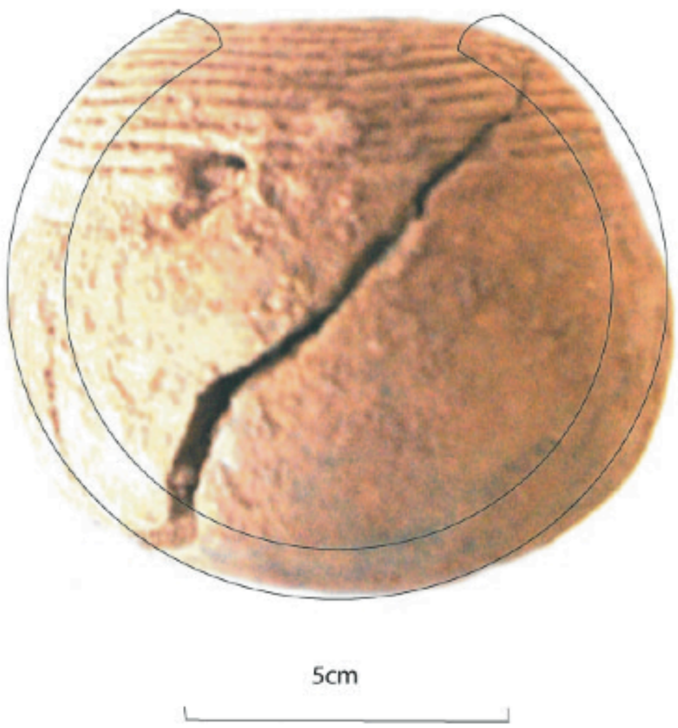

Fig. 6.38 Illustration showing a complete Classic Urewe small closed bowl from the burial at Kabusanze, with a simple rounded rim and a series of horizontal incised bands running around the vessel opening. There is also a perforation at the base of the bands

Other Burial Goods

Within the burial were also found a cowrie shell (Fig. 6.39), a quartz flake, four metal objects and shell beads. The cowrie shell is of particular significance because it occurs in an Early Iron Age context and must have been transported to central Africa from the coast because it is a salt-water mollusc. (The significance of this potential Early Iron Age long distance exchange artefact in Great Lakes Africa will be discussed in detail in Chapter 9).

Fig. 6.39 Photograph showing cowrie shell recovered from the burial at Kabusanze

The quartz flake (Fig. 6.40) was the only lithic found in the excavated assemblage from all of the features at Kabusanze despite quartz occurring naturally in the vicinity. Thus, although it is possible that the flake is an incidental inclusion it is suggested here to be a deliberate inclusion alongside all the other grave artefacts were. Unfortunately, as is common with quartz, the flake shows only potential evidence of working and has little interpretative value without other comparative material. However, it does demonstrate that the Urewe users at Kabusanze still possessed lithic tools, although their otherwise absence at the site suggests this was no-longer common practice.

Fig. 6.40 Photograph showing quartz flake recovered from the burial fill at Kabusanze

Five white shell beads (Fig. 6.41) were recovered from the burial fill. These were of two sizes with a 0.9mm or 0.5mm total diameter, and a 0.15mm perforation in the centre. Shell beads are common in African archaeological contexts throughout the Iron Age and thus their occurrence is not unusual and offers little further insight into the context of the burial. However, the beads are another example of adornment, alongside the iron objects (discussed below), and cowrie shell, that have been interred with these individuals and continue to suggest a human symbolic attachment to items of material culture at this time.

Fig. 6.41 Photograph showing four shell beads recovered from the burial fill at Kabusanze.

Finally, the four iron objects (Fig. 6.42) present a rare opportunity to study the end products of the iron working process in an Early Iron Age context. Two of the objects are shaped like a bracelet whilst another appears to be a necklet. The fourth is highly fragmentary but was a thin disc-shaped object with a small hole in the middle. The iron artefacts were x-rayed to show the iron to corrosion ratio (Fig. 6.43) and three had enough iron present for small samples to be taken for SEM-EDS analysis to gain further insights into early iron production in the region, which has been carried out by Jane Humphries on two of the objects (see Appendix 2 for the specialist report).

Fig. 6.42 Photograph showing iron objects from Kabusanze burial after conservation. From left to right: necklet; bracelet; bracelet; iron disk (photograph courtesy of Kelly Caldwell, UCL MSc Conservation student)

Fig. 6.43 X-ray showing the level of corrosion affecting the iron metal from the Kabusanze burial (X-ray courtesy of Kelly Caldwell)

The archaeometallurgical analysis carried out by Jane Humphris revealed that the bracelet and necklet were square in section and must have been hammered on four sides to achieve this, indicating a high degree of smithing skill. The results of the iron analysis are characteristic of bloomery iron production, suggesting that bloomery smelting, and primary forging techniques, were known to Urewe users. Humphris concludes that one or more smiths with a high degree of technical knowledge made these objects. These 1st millennium AD metallurgists were capable of shaping iron into long thin strands and forming them into symmetrical circles, and in one case producing a flat disc with a concentric hole, that Humphris believes would have been a difficult shape to achieve.

7.8 Summary

The two fieldwork seasons in the southern survey zone were very successful. The survey managed to identify over 52 Iron Age sites and re-located 9 previously published sites. This survey has demonstrated the potential for new and extant archaeological resources to survive in this densely populated and cultivated landscape. Whilst the interpretative potential of the survey results is limited they suggest that site location did not shift between the 1st and 2nd millennium AD. Instead there is an increase in visibility of Late Iron Age sites and these begin to appear down slope in lower altitudes, perhaps due to an increase in population resulting in greater pressures on land, or due to the availability of new land resulting from vegetation clearance and drainage of the valleys.

Unfortunately test excavation at a range of sites was unsuccessful, demonstrating that site identification based on surface finds is a poor indicator of sub-surface remains. However, by testing a range of sites the excavations encountered rich archaeological contexts at Kabusanze (BPS036). This site produced a wealth of Classic Urewe ceramics and three archaeological features all dating to c.400AD. Within the two pit features were identified charred palaeobotanical remains that represent the earliest domestic macro-remains for cultivated cereals in Rwanda and the region. Finally of considerable significance is the burial identified at Kabusanze that presents a rarely seen window into the socio-political context of Urewe users. Initial interpretation suggests that a complex burial event took place involving two skeletons, adult and neonate, a range of specialist materials including Urewe vessels and metal adornments, alongside beads, a quartz flake and a long distance trade artefact, a cowrie shell.

The most salient of these results will be returned to in Chapter 9 (section 9.1-13) when they will be contextualised within the other 1st millennium AD results from this research described in Chapters 7 and 8.

Chapter Seven

Research Findings from the Central Rwanda: Case Study 2

This chapter presents the results from the systematic survey and excavations in the central study zone. It will first briefly discuss the survey results before describing in detail the excavations at Karama (GPS014).

7.1 Central Survey Results

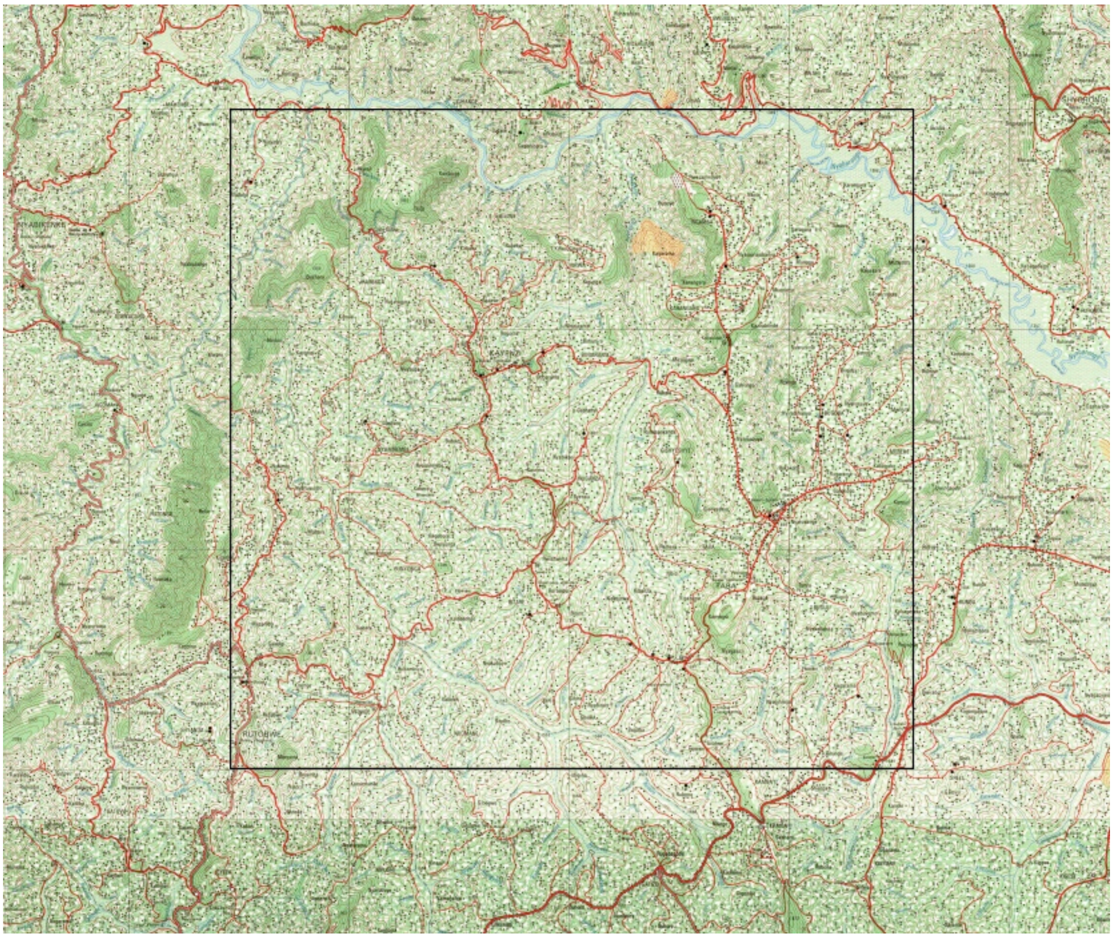

Fig. 7.1 Map showing the central survey zone (15km x 15km), outlined by bold black line. The bold red lines indicate roads whilst the thinner red lines are tracks and paths (reproduced and adapted with permission from CGIS Rwanda)

The survey in the central study zone was undertaken over two months from November 2006 to January 2007. The main administrative centre in this area was Gitarama (Fig. 2.1) (now called Ruhango) and all new sites identified were given a Gitarama Pragmatic Survey (GPS) number. In the central study zone (Fig. 7.1) forty-three new sites were identified along with one previously published site, Rugobagoba (Fig. 7.2) (Hiernaux and Maquet 1960; Nenquin 1967a; Van Noten 1983). The sites identified here represent a dramatic increase in our knowledge of this region. Only two sites, Ruli and Rugobagaoba, have previously been identified close to this area (Nenquin 1967a) and only Ruli has been excavated, with Rugobagoba being identified based on a small surface assemblage.

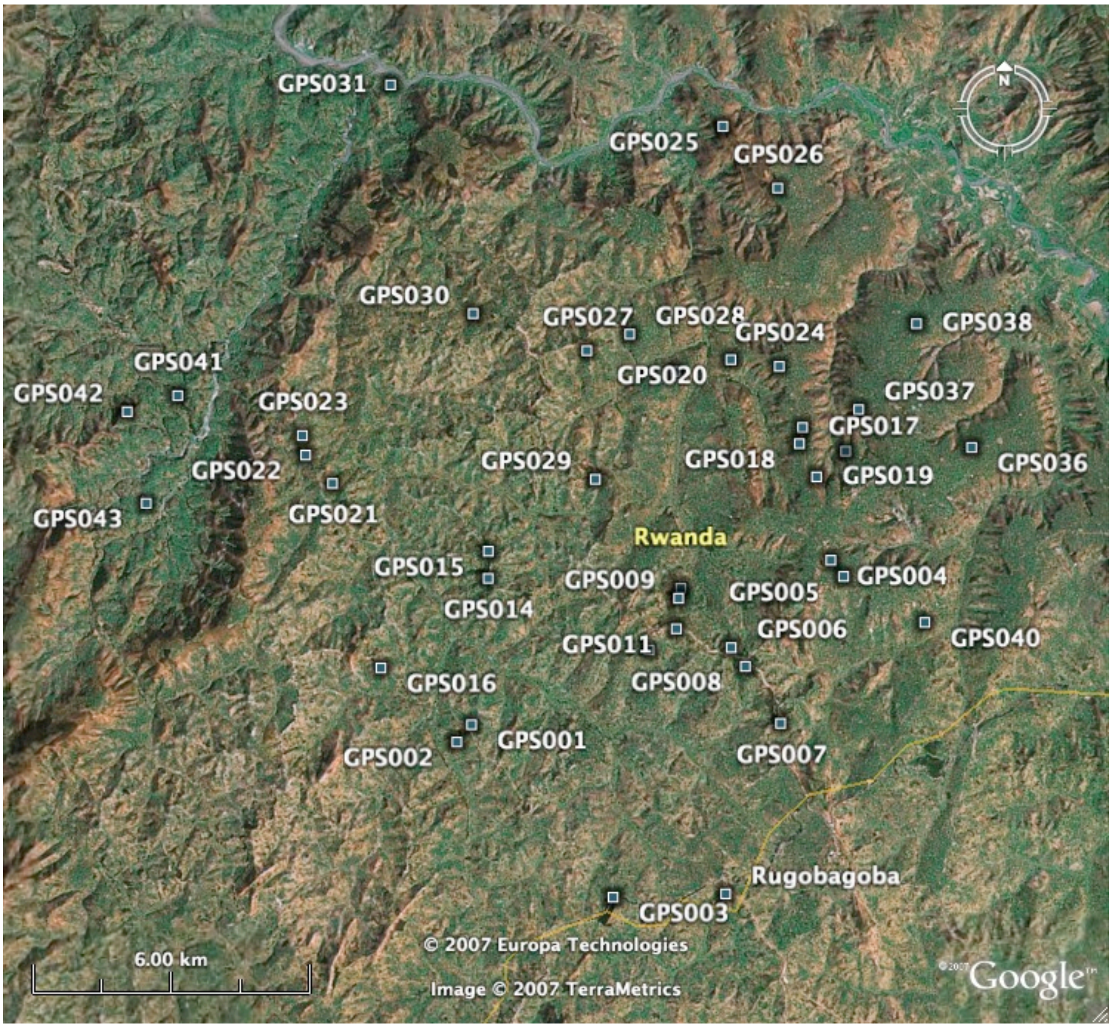

Fig. 7.2 Satellite Image showing total central survey zone site distribution

The landscape in central Rwanda is extremely dramatic and the aspect increases sharply compared to the southern survey zone. Many of the hill slopes in this region are not traversable and winding paths and roads navigate around them. To the north of the central survey zone is the River Nyabarongo, at approximately 1370m above sea level, and to the west are a ridge of hills and mountains that climb to 1950m above sea level alongside the River Gasaza. The severity of aspect and altitude decrease to the east where the average hill altitude is approximately 1700m above sea level. As in the south, survey sites are broadly distributed across the zone, and with the exception of GPS031, are not found in the lowest or wettest areas. However, unlike the southern survey zone sites are often not located within easy reach of rivers and are not located near the highest altitudes.

Fig. 7.3 Satellite Image showing central survey zone Urewe site distribution.

The central survey identified five new archaeological sites with Early Iron Age material and one previously published site, Rugobagoba (Hiernaux and Maquet 1960; Nenquin 1967a) (Fig. 7.3). Only one site, Karama (GPS014), was found without iron production remains and with the exception of GPS025, all the Early Iron Age sites are located to the south in a drier less riverine area, and again there is a preference for hilltops. The survey identified thirty-eight new sites with Late Iron Age material and one previously published site, Rugobagoba (Hiernaux and Maquet

1960; Nenquin 1967a). Of these sites, sixteen contained twisted-string roulette-decorated ceramics (Fig. 7.4); thirty-six contained knotted-strip roulette-decorated ceramics (Fig. 7.5) and thirteen contained both. Again only site, Karama (GPS014), was found without metalworking remains and, as in the Early Iron Age, Late Iron Age sites were located away from the major rivers with a preference for the lower altitude area to the east away from the high ridge to the west. However, as in the southern zone, the site elevation graphs (Figs. 7.6 and 7.7) suggest that during the Late Iron Age a greater range of elevations were utilised than in the Early Iron Age.

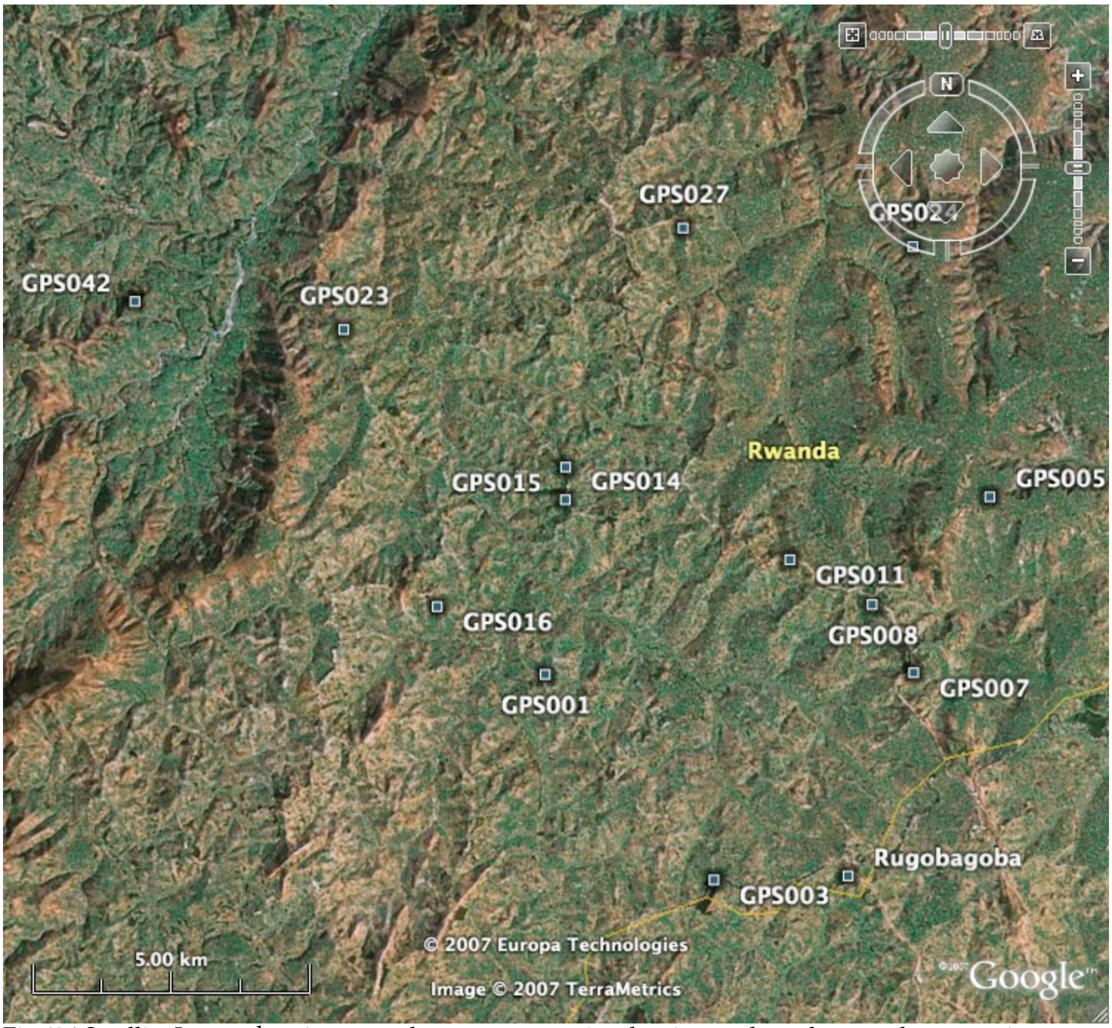

Fig. 7.4 Satellite Image showing central survey zone twisted-string roulette decorated pottery site distribution.

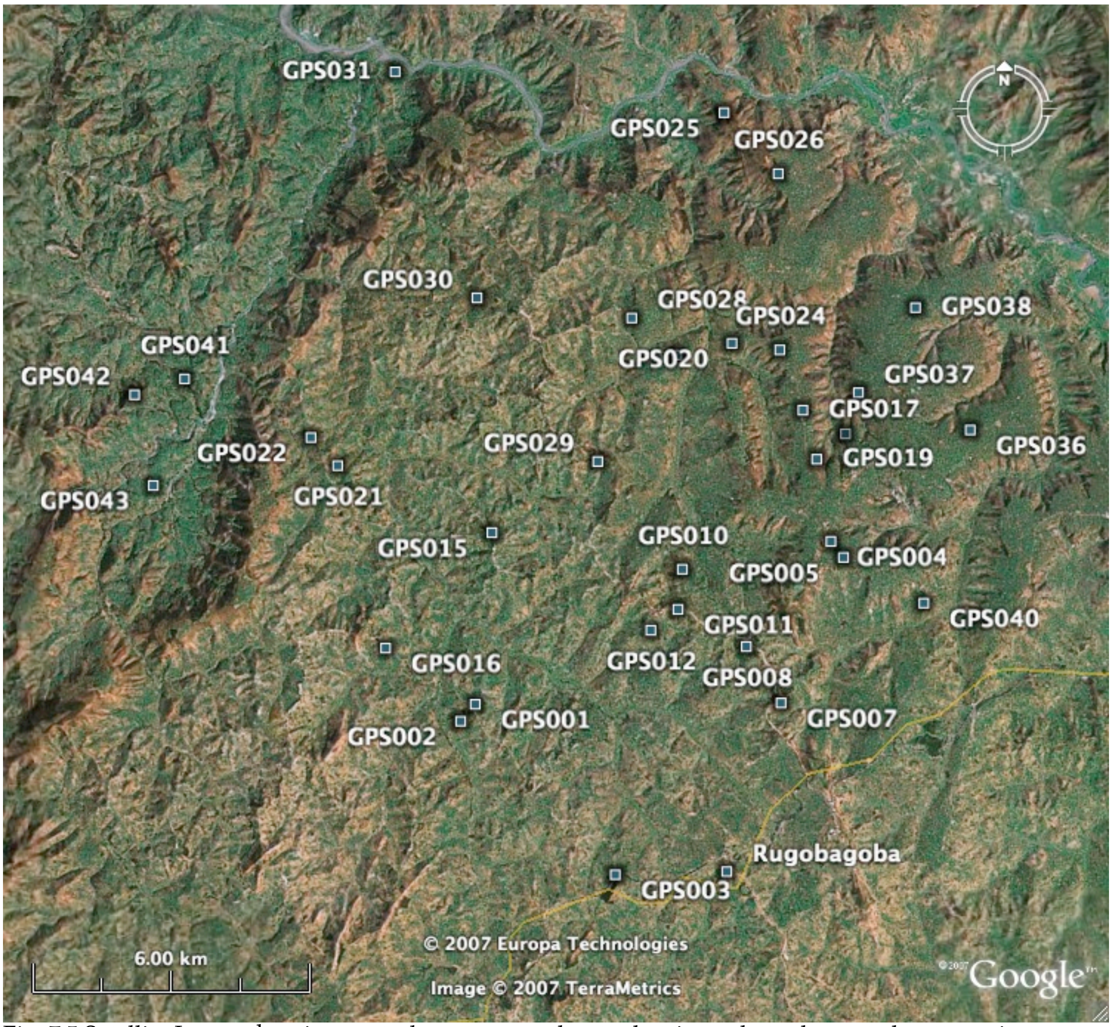

Fig. 7.5 Satellite Image showing central survey zone knotted-strip roulette-decorated pottery site distribution

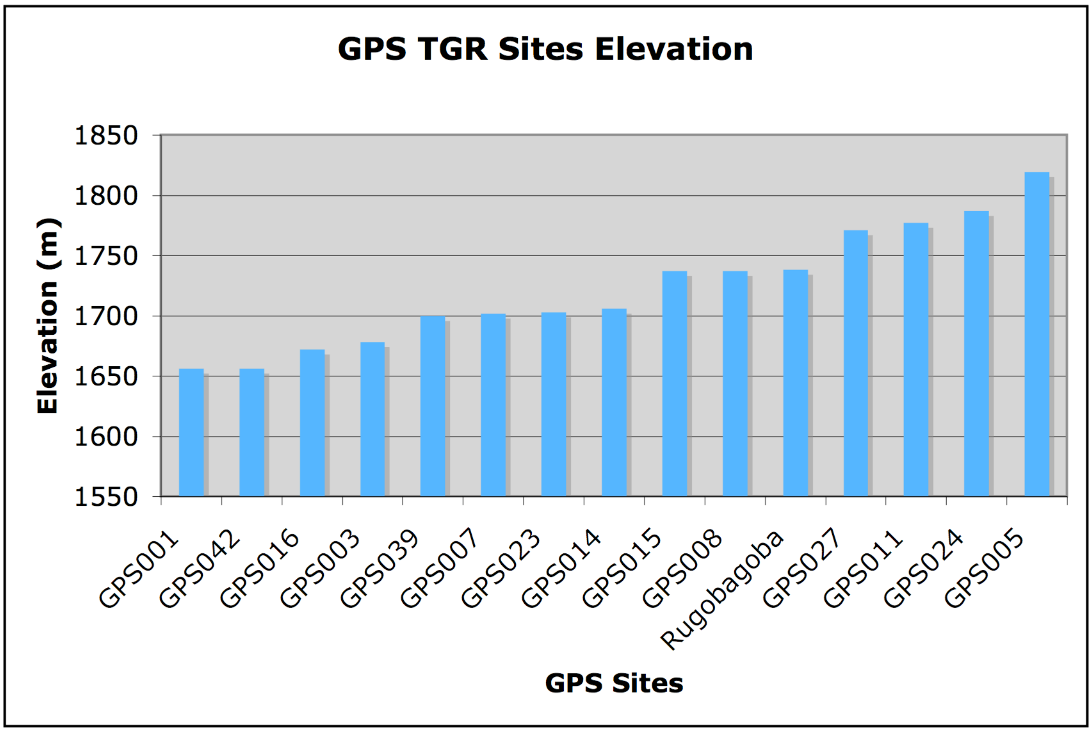

Fig. 7.6 Graph showing the elevation above sea level of all central survey zone (GPS) twisted-string roulette-decorated (TGR) sites

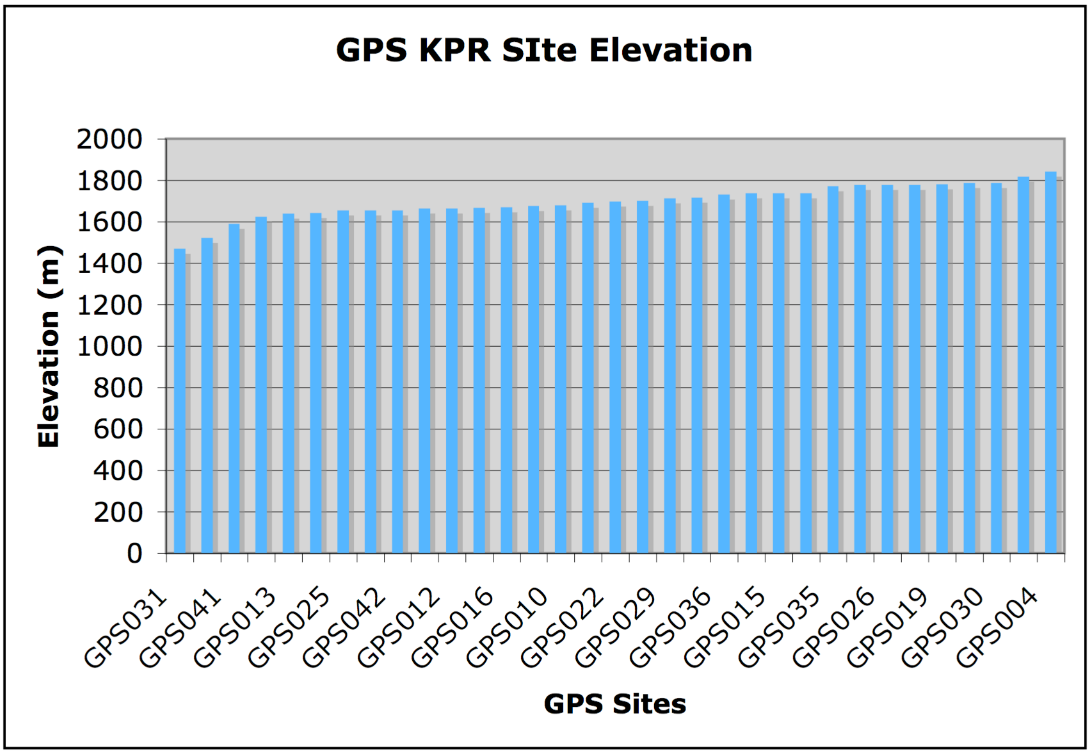

Fig. 7.7 Graph showing the elevation above sea level of all central survey zone (GPS) knotted-strip roulette-decorated (KPR) sites

Only two sites had previously been identified in the central zone, Rugobagba and Ruli, and attempts were made to re-locate both of these. Rugobagoba was reported to have both Urewe and Late Iron Age roulette-decorated wares and this site was easily found because it was located close to a historic building (Hiernaux and Maquet 1960: 66). However, intensive survey around this area only revealed a thin surface scatter of twisted-string roulette-decorated pottery in an area heavily disturbed by cultivation and construction on a heavily eroded hilltop with bedrock clearly exposed at the surface. The second site, Ruli, was reported by Hiernaux and Maquet (1960: 12-16) and Nenquin (1967a: 278) to preserve Late Iron Age burials and pits, and therefore based on the published data was a prime location for re-excavation. However, whilst the general area was relocated and substantial amounts of Late Iron Age roulette-decorated pottery was recovered, the location of the original excavations could not be identified.

Discussion and Interpretation

The central survey has resulted in a massive increase in the number of sites known for this region. Rugobagoba has been re-identified and forty-three new sites have been identified. The subtle shift in site location and the increase in site density between the Early Iron Age and Late Iron Age sites match the southern results. This is not unsurprising as the central zone has a broadly similar aspect and environment to the southern zone and both were core geographic components in the political development of Rwanda in the 2nd millennium AD. Southern Rwanda is known for its historical importance in iron production, supplying the kingdom with the means to propagate the land, to protect the people and to subjugate neighbouring peoples, whilst central Rwanda was the political and historical centre of the Rwandan kingdom (Vansina 2004: 111). The only noticeable difference between the two zones is the utilisation of less riverine environments. However, this appears to be related to the geographic characteristics of the landscape.

7.2 Central Excavation Results

In the central zone excavations were undertaken at one site, Karama (GPS014). This decision was based on the findings of the more extensive test excavation strategy in the southern study zone that led the study to focus on known deposits (Chapter 6 section 6.1). The excavation results from the south suggested that many of the sites identified primarily on surface scatters situated on hilltops were likely to be indicative of high erosion, low-deposition processes that had left these finds exposed, thus hindering the potential for sub-surface archaeological deposits. Taking these findings into consideration, and in the absence of any suitable previously published sites the survey data from the central zone was carefully scrutinized to identify sites with the greatest potential for the preservation of sub-surface archaeological deposits. Unfortunately, most of the survey sites from the central zone were found in areas associated with similarly poor deposition and high erosion such as hilltops and steep slopes, or were established on the basis of thin surface scatters. Of those that did preserve known archaeological deposits many were ruled out as the prominent remains were of iron working in the form of furnace bases, large slag piles and iron-ore mines, which are not a major focus of this research. Within this criteria only one site Karama (GPS014) was considered suitable for excavation.

7.3 Karama (GPS014)

The site at Karama, Kamonyi District, Rwanda was identified by survey during the primary fieldwork season and excavations took place between 30/07/07 to 10/08/07. The site is located at southing 01.57.14.4, easting 029.50.19.3 and at elevation 1727m and has been give the site code GPS014. A local man who recognised unusual ceramics in a road when it was constructed in the 1960s brought the site to our attention. A section of the road cut revealed an archaeological horizon containing Late Iron Age roulette-decorated ceramics and faunal remains, and Early Iron Age Urewe ceramics were found on the road surface below. Two test units were excavated above the road, units A and B (Fig. 7.8), in an attempt to encounter the archaeological horizon seen in section.

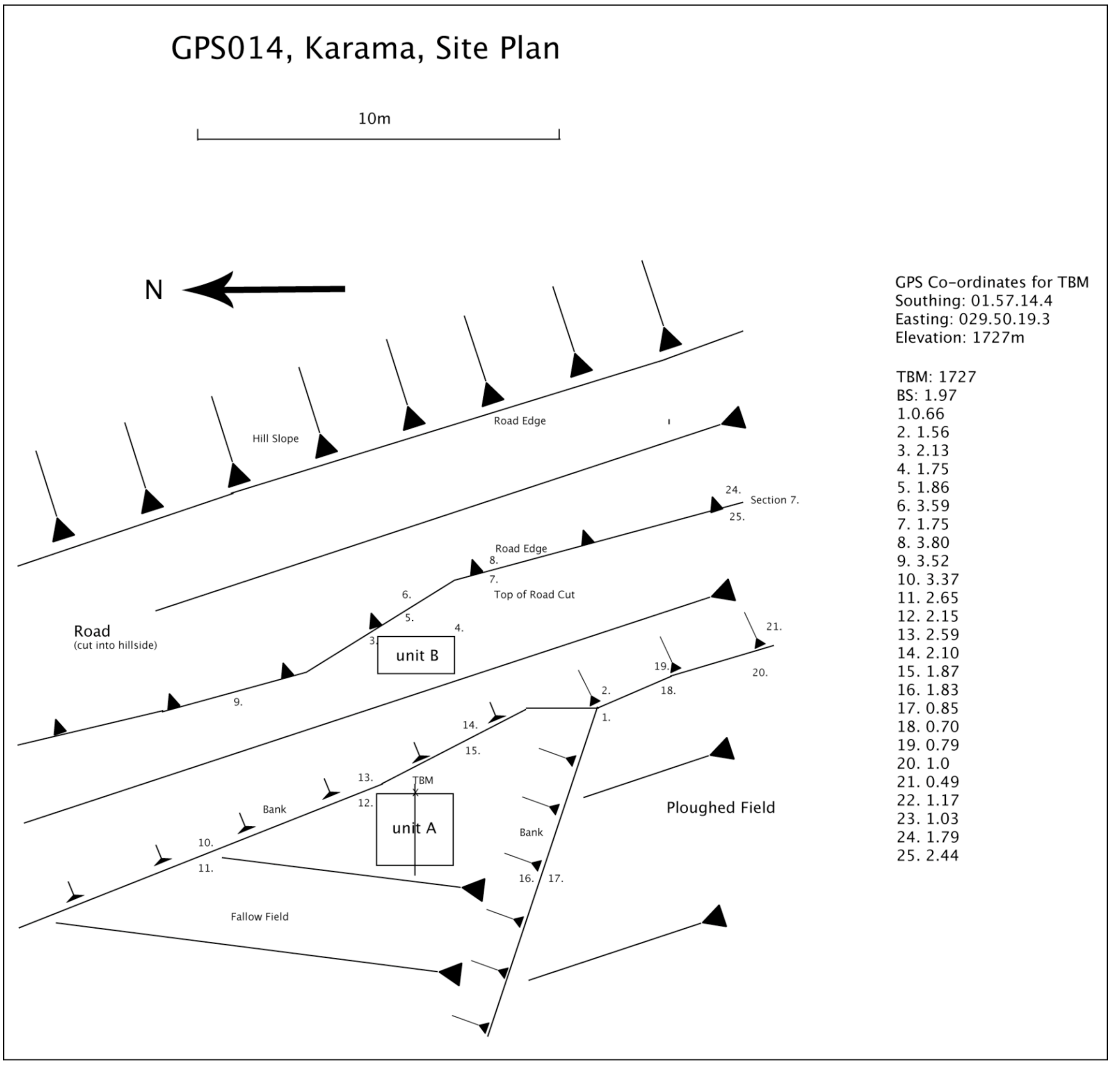

Fig. 7.8 Illustration showing site plan of Karama (GPS014) and location of test units A and B

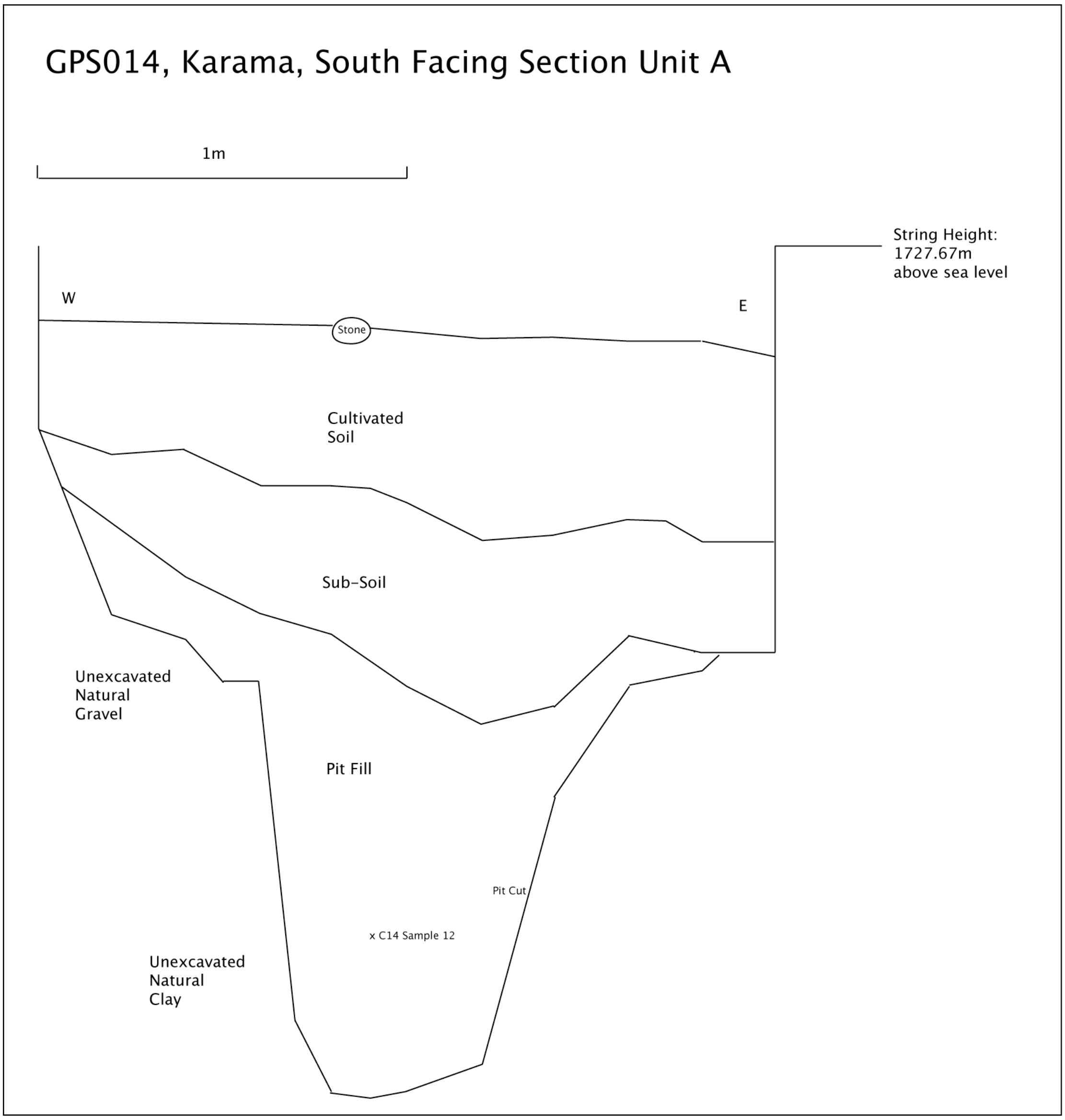

Fig. 7.9 Illustration showing the south facing section of unit A, Karama

Test excavation units A and B began as 1x2m trenches but unit A was extended to the north to further expose an archaeological pit feature that was identified during the initial excavations (Fig. 7.9). The most recent deposit encountered during the unit A excavations was greyish-brown, sandy topsoil that had been heavily disturbed by cultivation. This deposit contained rare animal bones and twisted-string roulette-decorated ceramics mixed with incised ceramics. Beneath this topsoil was a more compact bluish-black, sandy-silt, subsoil deposit that had also received some disturbance but to a lesser degree. The finds from the subsoil were similar to those from the topsoil, including both types of ceramic and rare zooarchaeological remains, but also containing small pieces of iron slag. There were no soil samples taken from either of these deposits due to the high probability of disturbance and contamination. Beneath the soils cut into the sterile natural gravel and clay was identified a deep conical-shaped pit feature. The pit fill contained an orangey-brown silty-clay matrix with occasional charcoal, pottery and animal bones, alongside small to medium sub-angular stones. The pit fill appeared to represent multiple tips of domestic waste mixed with other material. However, these tips were not distinct enough to allow separate excavation, although it was attempted. The fill did not contain any roulette-decorated pottery but did contain a range of incised, fingernail impressed and punctate decorated wares. Zooarchaeological material was also recovered from this deposit along with charcoal for dating and a soil sample for palaeobotanical analysis. Beneath the pit sterile natural deposits were reached and the unit was discontinued. Radiocarbon analysis was carried out on the charcoal from the conical pit because of the importance of the recovered ceramic finds and zooarchaeological material, and one date was generated (Fig. 7.10):

Sample No.	Context	Date BP	Calibrated date (2 sigma)
OxA-19519	Conical Pit	1291 ± 25	688 – 877 AD

Fig 7.10 Table showing the radiocarbon date for the conical pit, Karama

Unit B was positioned down slope, 5m to the east of unit A and during excavation was found to contain a series of sands and silts above a shallow cut feature (Fig. 7.11). Whilst the upper deposits of unit B resemble closely the topsoil and subsoil of unit A, those beneath are quite different. The most recent deposit in unit B was greyish-brown sandy topsoil containing twisted-string roulette-decorated ceramics and rare charcoal, which sat above a more compact blackish-blue sandy silt subsoil containing similar finds. Beneath these soil deposits was a series of compact sand and silt layers with frequent ceramics and occasional animal bone. These deposits sat above a shallow feature cut into the natural clays. This feature continued beneath the west facing section but it was not possible to extend the unit to follow it due to time constraints. This feature contained traces of charcoal, incised ceramics and a vertebra. Unfortunately, there was not enough charcoal within the fill to warrant recovering a 14C sample, however, a soil sample was taken.

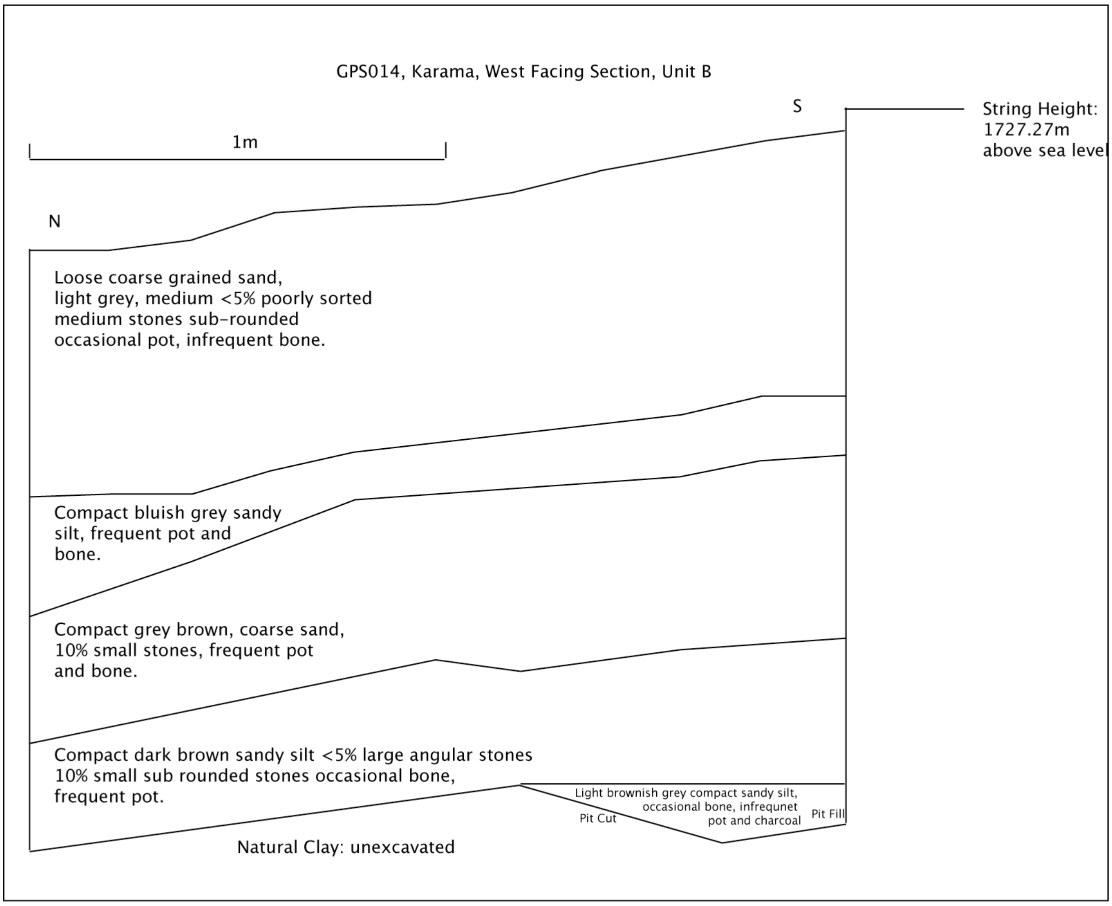

Fig. 7.11 Illustration showing the west facing section of unit B, Karama

7.4 Ceramic Analysis

The ceramics from Karama have been analysed at a range of scales including total site assemblage, total unit assemblages and by individual contexts. The ceramics from Karama fall into two generalised groupings, Late Iron Age roulette-decorated ceramics and an earlier incised and impressed ware, stylistically distinct from Classic Urewe despite sharing certain similarities. Following the methodology set out in Chapter 5, the ceramic analysis will be divided into technological and morphological profiles. The ceramic assemblage from Karama whilst limited is important as aside from the roulette-decorated ceramics the assemblage does not fit into the established Early Iron Age/ Late Iron Age typology for the region and, based on the radiocarbon date, this assemblage falls into the late Urewe to terminal 1st millennium AD hiatus, a poorly represented period of Great Lakes Africa history (discussed in Chapter 4 sections 4.2-4). Therefore the ceramic analysis questions for Karama will focus on defining this potentially new ceramic manifestation and considering its possible relations within Rwanda and the wider region.

Technological Profile

Within the Karama assemblage fourteen different fabric types were identified G1-G14. The prefix here refers to Gitarama, the local administrative centre, and is the prefix for all nomenclature in the central region. The properties for each fabric are listed below (Fig. 7.12):

Fabric	Physical properties and effect	Decoration	Attribution
G1	Pinkish grey, irregularly oxidised, smooth surface with rare inclusions: quartz <5% coarse to fine sand, poorly sorted, sub angular and mica <5% fine sand.	Incised	Devolved Urewe
G2	Orangey pink, smooth with frequent poorly sorted fine to coarse sand mica (5%). quartz <5%, other 1%	Incised	Devolved Urewe
G3	Orangey Grey, oxidised, red stone rich inclusions 5%granular to medium sand, sub rounded, mica <5%, granular to fine and quartz 1% coarse to fine sand.	Twisted-string Roulette	Late Iron Age
G4	Black, irregularly oxidised, sandy-smooth texture, infrequent inclusions: mica, fine sand, 1%; quartz <5% coarse to fine sand; other <5% coarse to fine sand.	Incised	Devolved Urewe
G5	Light yellowish grey, oxidised, <5% red stone,, granular to coarse sand, mica 1%, fine sand.	Undecorated	Unknown
G6	Smooth red slipped, irregular oxidisation, with fine mica <5% and quartz <5% inclusions	Twisted-string roulette	Late Iron Age
G7	Black unoxidised, smooth, rare inclusions: mica 1% fine sand.	Twisted-string roulette	Late Iron Age
G8	Black, unoxidised, very thin walled, fine ware. Fine mica sand 5%, quartz <1% medium sand.	Undecorated	Unknown
G9	Pinkish orange, irregular oxidisation, sandy to smooth surface, mica rich 5-10% poorly sorted granular to fine sand, quartz <1%	Incised	Devolved Urewe
G10	Black, irregularly oxidised, sandy texture, poorly sorted mica 10-15% coarse to fine sand, <5% quartz coarse to medium sand.	Twisted-string roulette	Late Iron Age
G11	Pinkish grey, irregularly oxidised, smooth texture, rare inclusions, mica 1-2% fine sand, quartz 1% coarse sand.	Twisted-string roulette	Late Iron Age
G12	Bluish grey, irregularly oxidised, smooth outer surface, rare inclusions: mica <1% fine sand, quartz <1% coarse sand.	Incised	Devolved Urewe
G13	Black, unoxidised, sandy/gritty texture, with frequent mica 10% fine sand.	Undecorated	Unknown
G14	Brown, irregularly oxidised, very smooth outer surface, rare inclusions, mica <1% fine sand.	Undecorated	Unknown

Fig. 7.12 Table showing the fabric groups from Karama

The total weight of the analysed assemblage (total assemblage – sherds <2cm) from unit A and B at Karama came to 8.431kg. Due to the high fracture rate in this assemblage, which complicated fabric definition, 21% of the assemblage could not be confidently assigned to a fabric grouping and was treated as miscellaneous. The remaining assemblage was divided into 14 fabric groups G1 (25%), G2 (18%), G3 (18%), G4 (10%) and G12 (4%), with the remaining nine fabric groups making up the last 4% (0.351kg).

A similar percentage distribution was found in the assemblage from unit A when it was analysed separately, after the miscellaneous group (12%) the assemblage was dominated by G1 (29%), G2 (26%), G3 (15%) and G4 (17%), with the remaining fabrics G5-G8 accounting for 2% of the total. There was a slight shift in distribution in unit B with miscellaneous group accounting for 32%, followed by G3 (21%), G1 (20%), G2 (10%) and G12 (9%) with the remaining fabrics, including G4, G6, G9, G10, G11, G13 and G14, accounting for the final 7%. The pattern is again repeated in the conical pit which was made up of fabrics G1 (35%), G2 (21%), G4 (29%) and miscellaneous (15%). However, there was more variability in the assemblage from the shallow pit which was made up of fabrics G1 (26%), G2 (5%), G3 (7%), G10 (1%), G13 (4%), G14 (5%) and miscellaneous (52%). The dominant fabrics from the total assemblage, G1, G2, G3 and G4, can be characterised as coarse wares. They are irregularly fired, have a wide range of poorly sorted inclusions, and large grain sizes.

Morphological Profile

Due to the high fracture rate and limited sample size seen in the Karama assemblage, only 23 reconstructable vessels were identified. Bowls dominate the total assemblage (96%) with only one jar identified. The bowls can be divided into beakers (35%), hemispherical bowls (26%), open bowls (21%) and flared mouth bowls (14%). Unfortunately no reconstructable vessels were recovered from the pit in unit B (Fig. 7.13), however, seven reconstructable vessels were recovered from the conical pit in unit A, including four hemispherical bowls, one open bowl one flared mouth bowl and one beaker. Fabrics G1 and G2 dominate the total reconstructable assemblage and this is broadly consistent with the technological profile. Unlike the Classic Urewe assemblage from Kabusanze, the rims from Karama show no bevelling and are almost totally confined to the simple rounded type (96%), with only one example of a beaded rim (4%).

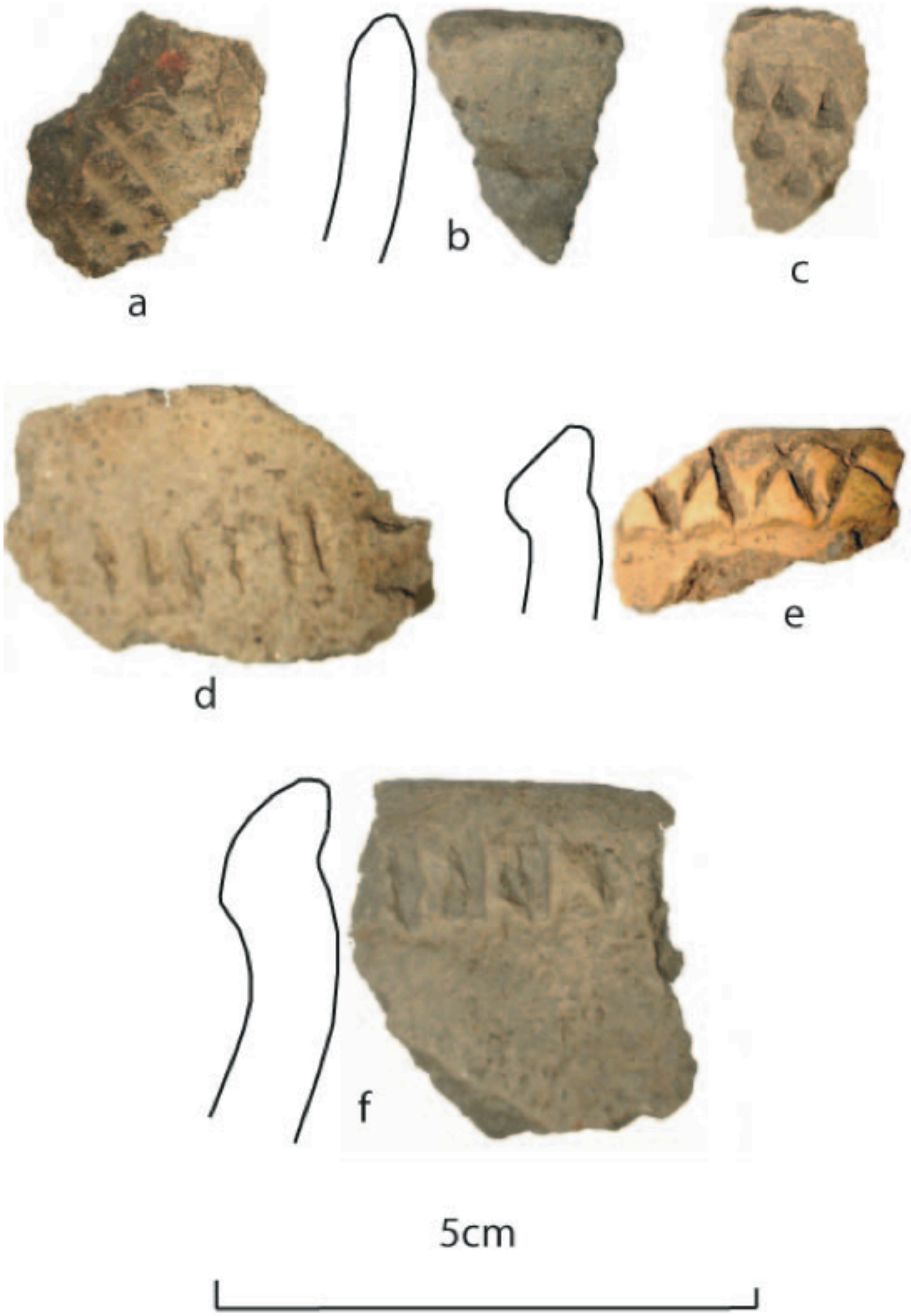

Fig. 7.13 Illustration showing a selection of rim types and decoration from the shallow pit in unit B, Karama, including comb-stamped (a), rounded rim (b), triangular punctate (c), parallel incised d), incised cross-hatched oblique rim (e), oblique incised (f).

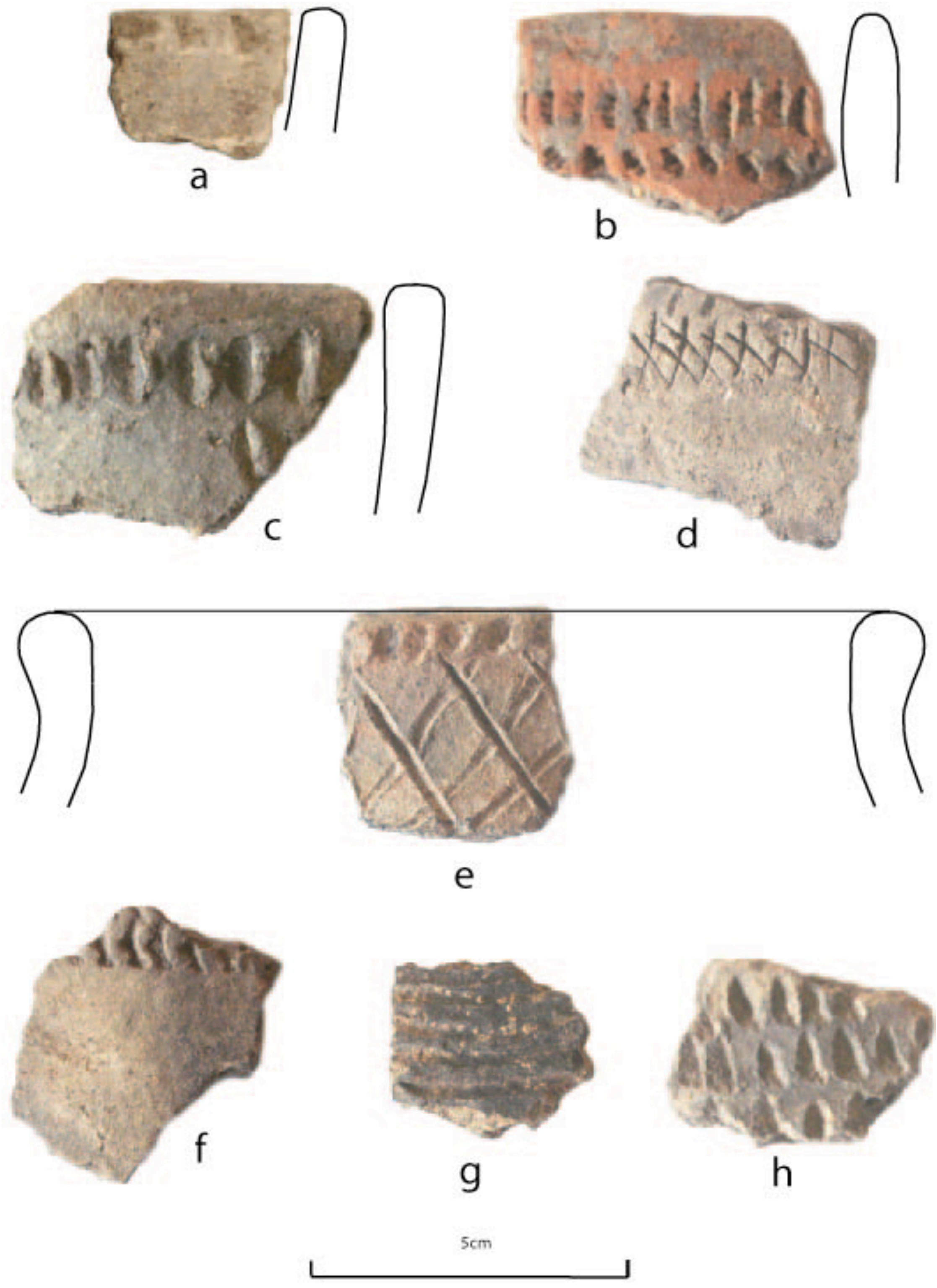

Fig. 7.14 Illustration showing a selection of rim types and decoration from the conical pit in unit A, Karama including squared fingernail impressed rim (a and c), incised and comb dragged rounded rim (b), cross-hatching (d), fingernail impressed and incised cross-hatched thickened rim (e), parallel incised (f and g) and triangular punctate (h).

	G1	G2	G3	G4	G6	G12
Hemispherical Bowl	16.5%	67%	0%	0%	0%	16.5%
Open Bowl	60%	20%	0%	0%	20%	0%
Flared Mouth Bowl	33.3%	33.3%	0%	33.3%	0%	0%
Beaker	75%	12.5%	12.5%	0%	0%	0%
Everted Rim Jar	0%	0%	100%	0%	0%	0%

Fig. 7.15 Table showing distribution of forms relative to fabrics, Karama

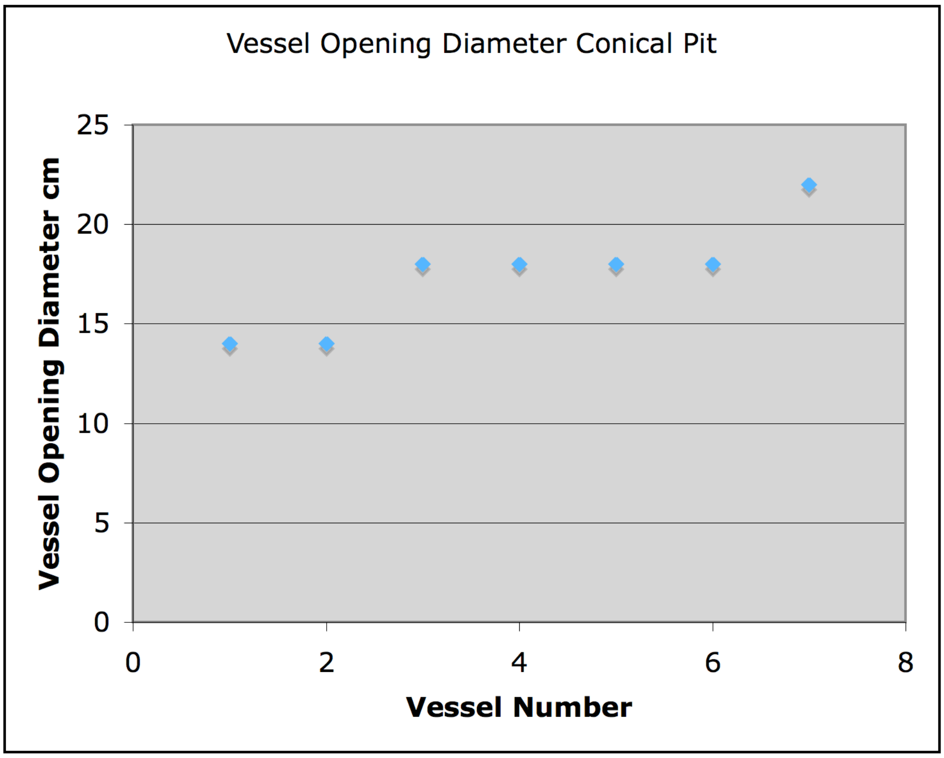

Fig. 7.16 Graph showing reconstructable vessel opening diameters for the conical pit, Karama

Because there were no reconstructable vessels from the shallow pit and only seven from the conical pit, the vessel opening diameters may be of limited value (Fig 7.16). However, if it is compared to the assemblage already analysed from Kabusanze (Chapter 6, section 6.4) it shows a similar distribution from 14-23cm, although none of the large (e.g. 40cm) or smaller (e.g. 8cm) vessels are present. The absence of the largest and smallest types is believed to be of limited significance, reflecting the lack of jars and high percentage of bowls in this assemblage.

The small size of the total reconstructable sample from Karama prevents a detailed statistical analysis of the morphological profile. Nonetheless, the ceramic assemblage from Karama is extremely important based on its empirical value in terms of the range of decorative styles in the incised/impressed group, which do not fit into the accepted typologies for either the Early or late Iron Ages.

There were 161 decorated sherds recovered from the total assemblage and these included six decorative styles: incision (41%), twisted-string roulette-decorated (30%), finer nail impressed (20%), punctate (4%), knotted-strip roulette-decorated (4%) and stab drag (1%). However, when the disturbed surface deposits are removed from the analysis the roulette styles are no longer represented. For example the conical pit in unit A contained 21 decorated sherds: 12 incised (7.14, g), 7 fingernail impressed (Fig. 7.14, c) and 2 punctate (Fig. 7.14, h) and the small pit in unit B contained 11 decorated sherds: 7 incised (Fig. 7.14, d and e), 2 fingernail impressed and 2 punctate (Fig. 7.14, c). Unfortunately, a consideration of decoration relative to the reconstructable vessel forms is of limited value here due to the small size of the decorated reconstructable sample, 11 vessels out of a total of 23.

Clearly, the ceramic assemblage from Karama displays a wide variety of decorative styles (Figs. 7.15, 7.17 and 7.18 for more examples). However, whilst the familiar Late Iron Age roulette styles exist within the assemblage they are not present in the earliest deposits and are only represented in those contexts believed to have been subject to regular disturbance through cultivation. This suggests that at least two separate ceramic phases are represented at Karama, the first an incised phase and the second, a roulette-decorated one. Due to the disturbance associated with the later phase the focus here has been on the earlier incised/impressed Karama pottery. The incised/impressed ceramics in the earliest phases of the site are most similar to Early Iron Age Urewe ceramics and are quite distinct from the roulette-decorated ceramics that dominate the Late Iron Age in this region. However, they are not the same as Urewe. Whilst similar vertical incisions, incised cross-hatching and incised triangular decorative styles do occur, there is a much wider range of much coarser fabric types, and it lacks two key diagnostic features, bevelled rims and dimple bases. Furthermore the dominant Urewe form type, the jar, is barely represented in the assemblage.

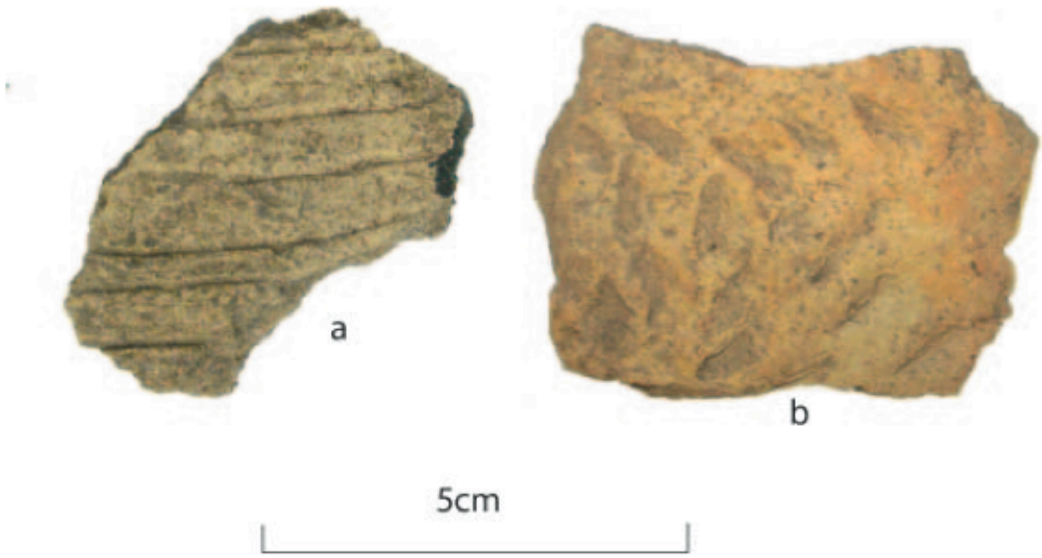

Fig. 7.17 Photograph showing crude parallel incisions (a) and fingernail impressions (b) in ceramics from Unit B, Karama

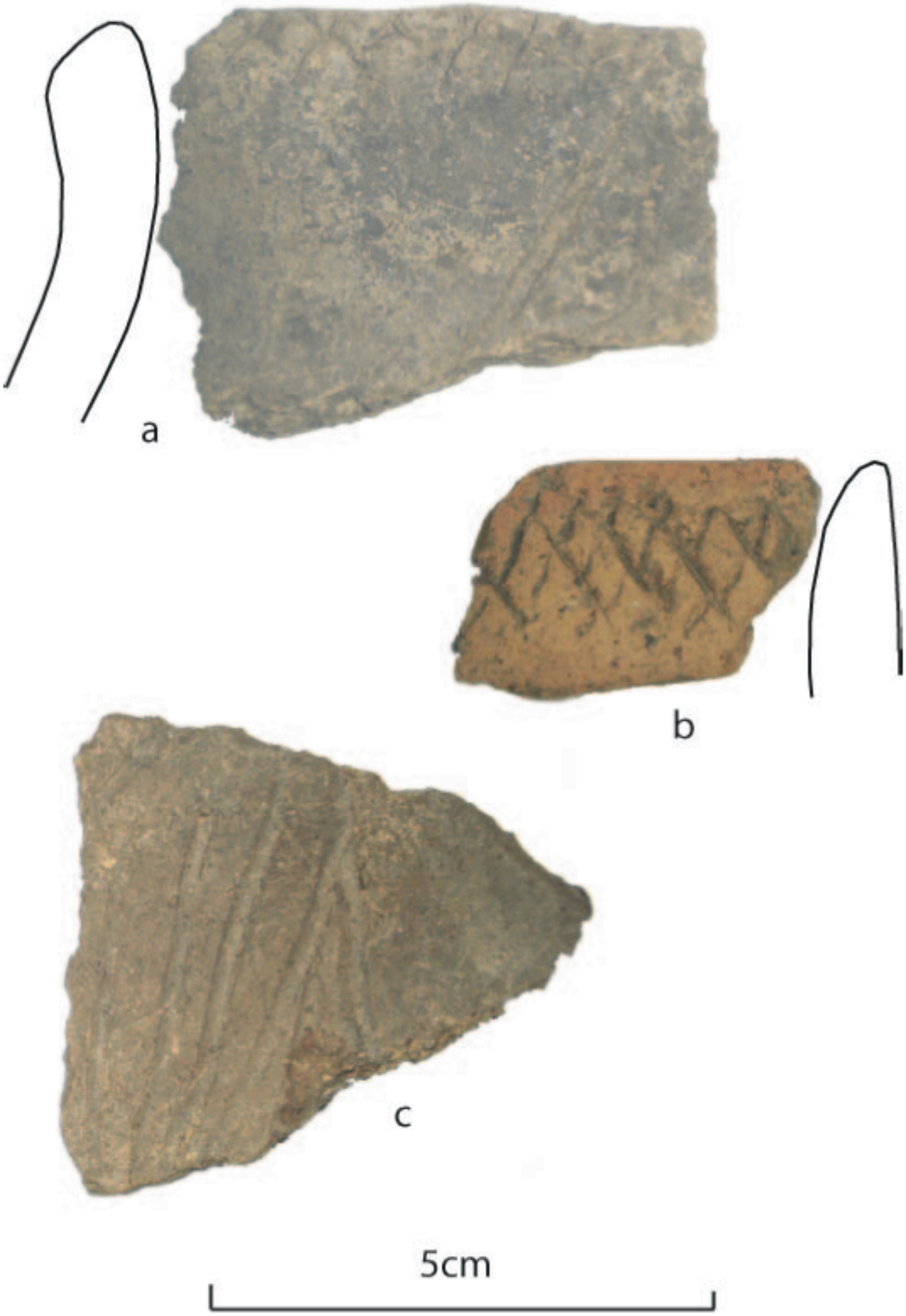

Fig. 7.18 Illustrated photograph showing rim types and various incised decoration from Unit A, sub-soil, Karama including, oblique incised cross-hatched rim (a), rounded incised cross-hatced rim (b) and non-parrallel incised lines (c).

Fig. 7.19 Illustrated photograph showing range of rims and incised, punctate and impressed decoration identified in Unit A, sub-soil, Karama, including crudely herringbone incised rounded rims (a and b), punctate and parallel incised rounded rim (c), parallel incised and incised cross-hatched (d) and fingernail impressed (e).

Having defined Karama pottery in general, the next stage is to briefly contextualise it within the Rwandan and wider Great Lakes Africa ceramic framework. The ceramic evidence for the incised/impressed phase from Karama is limited. There are only two discrete undisturbed features with this type and the assemblage is highly fragmentary with only seven reconstructable vessels identified from these contexts. However, this is still a very important assemblage because it does not appear to conform to any of the widely accepted ceramic traditions for the region and lies within the hiatus period identified in Chapter 4 for the terminal 1st millennium AD. Within Rwanda these ceramics most closely resemble incised styles from Bugarama in the north and incised "C-Ware" styles from a range of other sites (e.g. Nenquin 1967a). Unfortunately these sites are undated and this incised style is combined with twisted-string roulette in often poorly stratified assemblages. However, based on the date of these ceramics and their potential relationship with earlier "Classic Urewe" ceramics they may also have affinities with "Devolved Urewe" identified by Ashley (2005) and Posnansky (1961b; et al. 2005) in Uganda at a number of sites during this terminal phase such as Lutoboka, Sozi and Lolui (see Chapter 4, section 4.4). This possibility will be explored in detail in Chapter 9.

The ceramic analysis from Karama suggests that the earliest deposits encountered during excavation represent a separate ceramic phase in the Great Lakes Africa Iron Age that falls between the more familiar 1st millennium AD Classic Urewe and the 2nd millennium AD roulette-decorated ceramic phase. In summary Karama appears to contain three successive ceramic phases Classic Urewe, incised Karama Pottery (potentially Devolved Urewe), and Late Iron Age roulette-decorated pottery. Whilst no Classic Urewe contexts were encountered during excavation, Classic Urewe sherds with multiple bevelled rims and incised crosshatching were found down slope on the surface. It is believed that these came from nearby deposits because the site is close to the top of a small hill, suggesting that even if they have been transported they cannot have been moved far. This suggests a degree of antiquity, and continuity, for the occupation of this hilltop, if not the actual site of excavation, stretching back into the mid or early 1st millennium AD.

7.5 Zooarchaeological Analysis

The zooarchaeological assemblage from Karama is small and it is not believed that it can be usefully statistically analysed. However, the assemblage is very significant as it provides empirical evidence of domestic species exploited alongside wild species in a context dated to c.700AD. Following the methodology set out in Chapter 5 the zooarchaeological remains from each context have been analysed separately, recording where possible the taxon, element, side, aging evidence, modification and the Number of Identified Species (NISP) and Minimum Number of Individuals (MNI). The age estimates of the *Bos taurus* remains from Karama are based on those established by Grant (1978, 1982) and ranges are expressed in months. Where it has not been possible to identify bovid remains to species these have been given a size-based category that reflects an estimate of the size of the individual animal that a specimen came from. These are called bovid size classes (1 to 5), five being the biggest and one being the smallest. These are subjective categories that help to give a more representative description of the non-species attributed assemblage.

Two hundred and fifty-five zooarchaeological specimens were recovered from the excavations at Karama and sixty-three (25%) of these were identified to at least taxon and element. Very few specimens displayed signs of deliberate modification: seven had knife-cut marks and one had evidence of sawing. The topsoil from unit A contained rare and fragmentary zooarchaeological remains, which prevented specimen identification beyond family (Fig. 7.20). All of the identified remains came from *bovidae* with three specimens from bovid size class 5 and two from bovid size class 3. The only identified modifications were knife cut marks apparent on a thoracic vertical process. There was only one unidentified fragment from this context.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid 5	Femur	Right	Fused	Proximal		3	1
	Thoracic Vertebrae		Unfused	Vertical Process	Knife Cut		
	Radius	Left	Fused	Distal			
Bovid 3	Pelvis			Fragment		2	1
	Thoracic Vertebrae		Unfused	Vertical Process			

Fig. 7.20 Table showing the identified zooarchaeological remains from the topsoil in Unit A, Karama

In the subsoil of unit A the zooarchaeological sample consisted of four bovid size class 5 specimens, two bovid size class 3 specimens, one bovid size class 2 specimen, and five cattle (*Bos taurus*) specimens (Fig. 7.21). Two of the specimens showed modification by knife cut marks and one displayed sawing. There were 21 unidentified fragments from this context.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid 5	Scapula	Right	Unfused	Proximal + shaft		4	1
	Metacarpal			Fractured Shaft			
	Rib			Proximal Shaft			
	Cranial Vertebrae			Fragment	Knife cut		

Bovid 3	2nd Phalange		Fused	Whole	Sawed	2	1
	Horn			Fragment			
Bovid 2	Radius	Right	Unfused distal epiphyses	Distal epiphyses		1	1
Bos taurus	Ulna	Left	Fused	Proximal	Knife cut	5	1
	Astragalus	Left	Porous	Less than half			
	1st Phalange			Fragment			
	1st Phalange		Fused proximal	Proximal			
	Lower pre-molar 3/4	Left	36-42months	Almost whole			

Fig. 7.21 Table showing identified zooarchaeological remains from subsoil test unit A Karama

The zooarchaeological sample from the deep conical shaped pit (7.22) is the most significant because it contains both domestic and wild specimens and comes from a sealed and dated archaeological feature. Whilst, the pit fill was dominated by *bovidae*, there are also *suidae, artiodactyla* and *carnivora* remains. The specimens identified to species included six cattle (*Bos taurus*) specimens, one Gazelle humerus, one Great Forest Hog metatarsal and one leopard (*Panthera pardus*) tail bone. The pit fill also contained two specimens of bovid size class 5, four specimens of bovid size class 4, and six specimens of bovid size class 3. Only one specimen showed evidence of deliberate modification, a cattle femur. There were seventy-five unidentified bones from this context.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid 5	Sacrum			Fragment		2	1
	Thoracic vertebra		Unfused	Vertical process			
Bovid 4	Vertebra		Unfused Epiphysis	Epiphysis		3	1
	Scapula	Left	Fused	Proximal			
	Mandible (G)	Right		Fragment			
	Tooth (G)	Right		Fragment			
Bovid 3	Rib			Fractured shaft		6	1
	Metapodial			Fractured shaft			
	Scapula			Fragment			
	Scapula	Right		Proximal + shaft			
	Pelvis			Fragment			
	Thoracic vertebrae		Unfused	Vertical process			

Bos taurus	Tibia(G)	Left	Unfused Proxiaml Epiphyses	Proximal epiphyses		5	1
	Tibia (G)	Left	Unfused proximal	Proximal + shaft			
	Metapodial		Just fused	Proximal + shaft			
	1st Phalange		Fused	Whole			
	Horn	Left		Proximal + shaft			
	Femur	Left	Fused proximal	Proximal	Knife Cut		
Antilopinae	Humerus	Right	Fused	Distal		1	1
Hylochoerus meinertzhageni	Metatarsal		Fused	Proximal		1	1
Panthera pardus	Coccyx			Whole		1	1

Fig. 7.22 Table showing identified zooarchaeological remains from the conical pit fill, Karama

The zooarchaeological assemblages from the topsoil and subsoil are of little value. These contexts reveal little in the way of species information and in the case of the topsoil are likely to have been mixed through cultivation and thus may be from recent deposition. Furthermore, the occurrence of cattle (*Bos taurus*) remains in contexts with Late Iron Age roulette-decorated pottery is not unexpected because cattle are known to be important in this region during the Late Iron Age and especially during the Kingdom Era. However, the occurrence of domesticated cattle remains in a secure sealed context with wild remains dating to the terminal 1st millennium AD is more significant. Whilst it is debatable as to why the leopard (*Panthera pardus*) specimen is present it is possible that both the wild pig (*suidae*) and *antilopinae* remains were hunted or at least gathered. However, without butchery or hunting evidence any such conclusions although probable, remain speculative.

In unit B at Kabusanze infrequent zooarchaeological remains were again recovered. In the topsoil no animal bones were identified to family or species because the ten recovered specimens were highly fragmentary. The frequency of finds increased in the subsoil (Fig. 7.23) where bovid size class 5 was represented by two specimens both with knife cut marks, bovid size class 4 by one specimen and bovid size class 3 by four specimens. Only three specimens were identified to species, a cattle (*Bos taurus*) second phalange, and a first and second upper molar of age class VII and VIII respectively, which indicate individuals that had reached full maturity in life (e.g. older than 24 months). There were 29 unidentified fragments from this context.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid 5	Thoracic vertebrae			Fragment	Knife cut	2	1

	Rib			Fractured shaft	Knife cut		
Bovid 4	Metapodial			Fragment		1	1
Bovid 3	Caudial vertebrae		Fused	Whole		4	1
	Metatarsal		Unfused distal	Distal + shaft			
	Nevicular cuboid			Fragment			
	Mandible			Fragment			
Bos taurus	2nd Phalange		Just fused	Whole		3	1
	Upper Molar 1	Right	Age class VII	Less than half			
	Upper Molar 2	Right	Age Class VIII	Less than half			

Fig. 7.23 Table showing identified zooarchaeological remains from subsoil Unit B Karama

The following context in unit B, coarse sand, contained a similar assemblage to the topsoil and subsoil (Fig. 7.24). Three bovid size class 5 specimens, five bovid size class 3 specimens, one with a knife cut mark, a single wild pig (*suida*e) specimen and a cattle (*Bos taurus*) specimen, an upper second pre-molar with an age class of VIII to IX, the oldest age range (e.g. 36months or older), were identified. A total of forty-four unidentified fragments were recovered from this context.

Taxon	**Element**	**Side**	**Aging**	**Part**	**Modification**	**NISP**	**MNI**
Bovid 5	Rib			Fractured shaft		3	1
	Axis			Fragment			
	Atlas			Fragment			
Bovid 3	Scapula			Fragment		5	1
	Pelvis			Fragment			
	Coccyx			Whole			
	Cranial vertebrae			Fragment	Knife cut		
	Hyoid			Less than half			
Bos taurus	Upper pre-molar 2	Left	Age class VIII- IX	Almost whole		1	1
Suidae	Upper molar 3	Right		Whole		1	1

Fig. 7.24 Table showing identified zooarchaeological remains from coarse sand unit B, Karama

Bovidae again dominate the zooarachaeological sample from the silty-sand in unit B with one *artcodactyl* specimen, bushbuck (*Tragelaphus scriptus*) (Fig. 7.25). From this context bovid size class 5 was represented by one fused distal humerus fragment, bovid size class 4 by one cranial vertebrae fragment, bovid size class 2 by one fractured femur shaft. A single cow (*Bos taurus*) specimen was identified, an upper third deciduous tooth, which aged the individual to between 0-15months. Twenty-two fragments recovered from this context remain unidentified.

Taxon	Element	Side	Aging	Part	NISP	MNI
Bovid 5	Humerus	Right	Fused Distal	Distal	1	1
Bovid 4	Cranial vertebrae			Fragment	1	1
Bovid 2	Femur	Right		Fractured Shaft	1	1
Bos Taurus	Upper deciduous 3		0-15months	Almost whole	1	1
Tragelaphus Scriptus	1st Phalange		Fused	Almost whole	1	1

Fig. 7.25 Table showing the identified zooarchaeological remains from silty sand Unit B, Karama

From the earliest feature in unit B, the shallow pit, only one zooarchaeological specimen was recovered, a thoracic vertebra. This specimen was only partially preserved and could only be identified to Bovid Size Class 5.

The total zooarchaeological assemblage recovered from unit B was very similar to that from unit A. Both were dominated by *bovidae* with rare *suidae*. The majority of bovid specimens identified to species belonged to the domestic cattle (*Bos Taurus*). The aging of the cattle bones where possible suggests that a specific kill strategy was not employed as a variety of ages at death were identified ranging from immature to mature specimens. For example, dental age ranges from 0-15 months right up to the oldest ranges (>36 months) were identified and the post-cranial elements were present from unfused, just fusing and fully fused specimens. The most significant result from the zooarchaeological sample from Karama was the identification of domestic remains alongside wild remains in a context dated to the terminal 1st millennium AD. However, whilst the presence of domestic cattle species, some with knife cut marks, suggests human consumption, the presence of wild specimens at the site is not so clear. The wild *bovidae* and *suidae* were probably hunted, or scavenged, deliberately brought to site, and used as food, but in the absence of butchery marks the evidence is not conclusive. It is also difficult to draw any further conclusions from this assemblage because it is extremely small. Whilst the total Number of Identified Specimens Present (NISP) in the entire assemblage, from both unit A and B, is 61, the Minimum Number of Individual's (MNI) present is only 27. Furthermore, the MNI could be reduced if the specimens identified to a bovid size class were identified to species and were not shown to replicate side-specific elements within those species. Furthermore, when analysed by separate context the MNI is 1, in all examples.

The significant results from the zooarchaeological analysis from Karama can be summarized as:

- The identification of domesticated cattle during the mid to terminal 1st millennium AD, which continues to support the linguistic evidence for the early establishment of herding (Schoenbrun 1998 see Chapter 4 section 4.9).
- The identification of butchered domestic faunal remains alongside wild remains, suggesting that an economic dichotomy between foraging and herding cannot be assumed to have existed in Rwanda at this time.

7.6 Palaeobotanical Analysis

Three contexts were sampled for palaeobotanical remains at Karama, including the subsoil and pit fill from unit A, and the pit fill from unit B. Analysis of the unit A subsoil sample revealed two burnt finger millet (*Eleusine coracana*) seeds and one indeterminate fragment. Whilst these specimens are interesting in a Late Iron Age context, the potential for mixing through cultivation brings their integrity into question. Analysis of the soil sample remains from the conical pit fill revealed one burnt finger millet seed and two seed coat fragments, one of which resembled finger millet based on its distinctive surface patterning. The shallow pit from unit B contained one burnt finger millet seed fragment, three indeterminate fragments and one seed coat fragment. Like the zooarchaeological sample, the palaeobotanical sample is very small and it is difficult to extrapolate much secondary data from these limited remains. However, the identification of finger-millet seeds in the pit fill of the conical pit, dated by radiocarbon association to the terminal 1st millennium AD, and the presence of a second finger-millet seed in the shallow pit, tentatively dated to the same period based on the ceramic typology is highly significant. Despite the presumed importance of crops such as sorghum and finger millet in the prehistoric sub-Saharan African diet there has been very little direct archaeological evidence recovered (Young and Thompson 1999: 63). This is even more surprising for central and eastern Africa as the linguistic evidence suggests that finger millet was probably domesticated in Northern Uganda (Ehret 1982; Harlaan 1992). Although this limited evidence will be questioned, the continued identification of domestic crops at a range of sites is developing the argument in Rwanda and elsewhere in Great Lakes Africa (e.g. Van Grunderbeek and Roche 2005) that domesticated cereals were being cultivated in the 1st millennium AD in Great Lakes Africa.

7.7 Other Finds

The small finds from Karama were confined to three iron objects recovered from the excavations in unit A. The first, a flat piece of iron was recovered from the topsoil. This was understood to be a piece of a larger blade and due to it's size, level of preservation and similarity to machete blades used today it is believed to be of recent origin. The second piece of iron was recovered from the subsoil. This object was quite small and ambiguous and thus no interpretation of its use has been made. The final item came from the pit fill of the conical pit. This item was a broken, concreted iron blade, most probably from a knife or possibly a projectile such as a small spear. The third item is unexpected in a context that has been interpreted as a rubbish pit for domestic waste. The find here is unusual because iron can be re-smelted and is not normally discarded. However, it is possible that this piece was unintentionally interred in the pit because no other pieces were found. This final piece has been submitted to Jane Humphris' study of iron metallurgy in Rwanda and is awaiting analysis.

7.8 Summary

The survey results from the central region broadly match the results from the southern survey zone and suggest that site location has expanded over the Iron Age but has not drastically changed. Potentially representing an increase in population and clearance of lower areas, down slope. The survey was also successful at identifying a variety of Iron Age archaeological materials across central Rwanda, suggesting that there are still many archaeological resources to be explored in this area.

The excavations at Karama (GPS014) were very successful. They identified two sealed archaeological features containing zooarchaeological and palaeobotanical remains in contexts dated to c.700AD alongside a potential devolved Urewe ceramic. The identification of these remains will help this thesis tackle two of the research objectives identified previously. For example, the ceramic remains suggest that Urewe may have devolved in Rwanda as has been identified elsewhere in Great Lakes Africa and thus there is more ceramic variety in the Iron Age than the established typology reflects. And the subsistence economic remains suggest that economic exclusivity, a subsistence trichotomy, should not be assumed in the terminal 1st millennium AD in central Rwanda. The significance of these finds within Rwanda and Great Lakes Africa will be explored in detail in Chapter 9.

Chapter Eight

Research Findings from Northern Rwanda
Case Studies 3, 4, 5 & 6

This chapter presents the results from the systematic survey and excavations in the northern study zone. It will briefly discuss the survey results for the whole study zone before detailing the research findings from case studies 3, 4, 5, & 6.

8. 1 Northern Survey Results

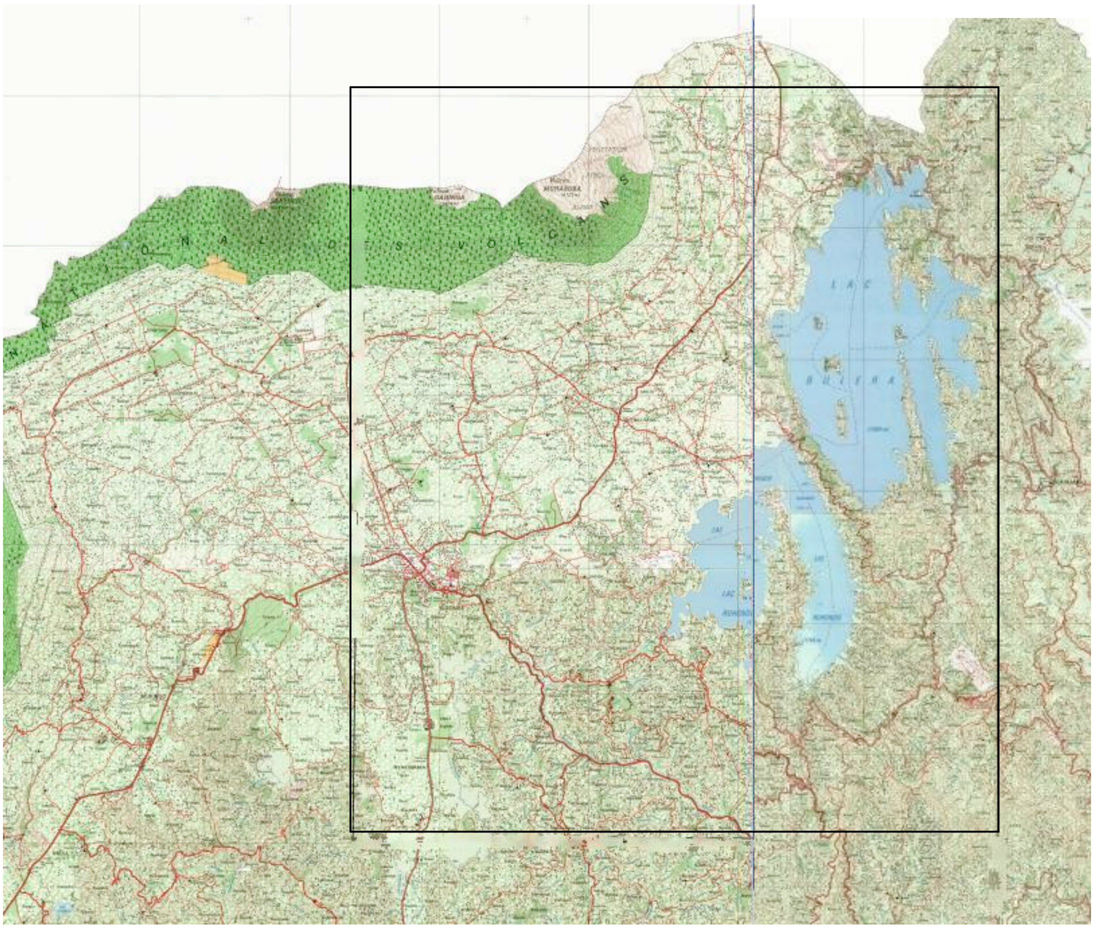

Fig. 8.1 Map showing the northern survey zone (15km x 15km), outlined by bold black line. The bold red lines indicate roads whilst the thinner red lines are tracks and paths (the bold blue line is a join in two maps) (reproduced and adapted with permission from CGIS Rwanda)

Systematic and opportunistic survey was undertaken in the northern study zone over two months from February to March 2007. The largest administrative centre in the northern survey zone was Ruhengeri (now called Musanze) (Fig. 2.1) and all new sites identified during the work were given a Ruhengeri Pragmatic Survey (RPS) number. In the northern survey zone (Fig. 8.1) nineteen new sites and five previously published sites were identified (Fig. 8.2) (Hiernaux and Maquet 1960; Nenquin 1967a; Simon 1983; Van Noten 1983). Of the previously published sites three had been partially excavated, Masangano, the Musanze Caves and Bugarama, and two, Nyanga Cave and Kiguhu, had been mentioned based on their surface assemblages. Van Noten (1983) excavated two test units at the Musanze Caves, Simon (1983) conducted larger scale excavations at Bugarama and Hiernaux and Maquet (1960), Czikan (unpublished), Van Noten (1983) and Simonet (2004) have excavated test units at Masangano.

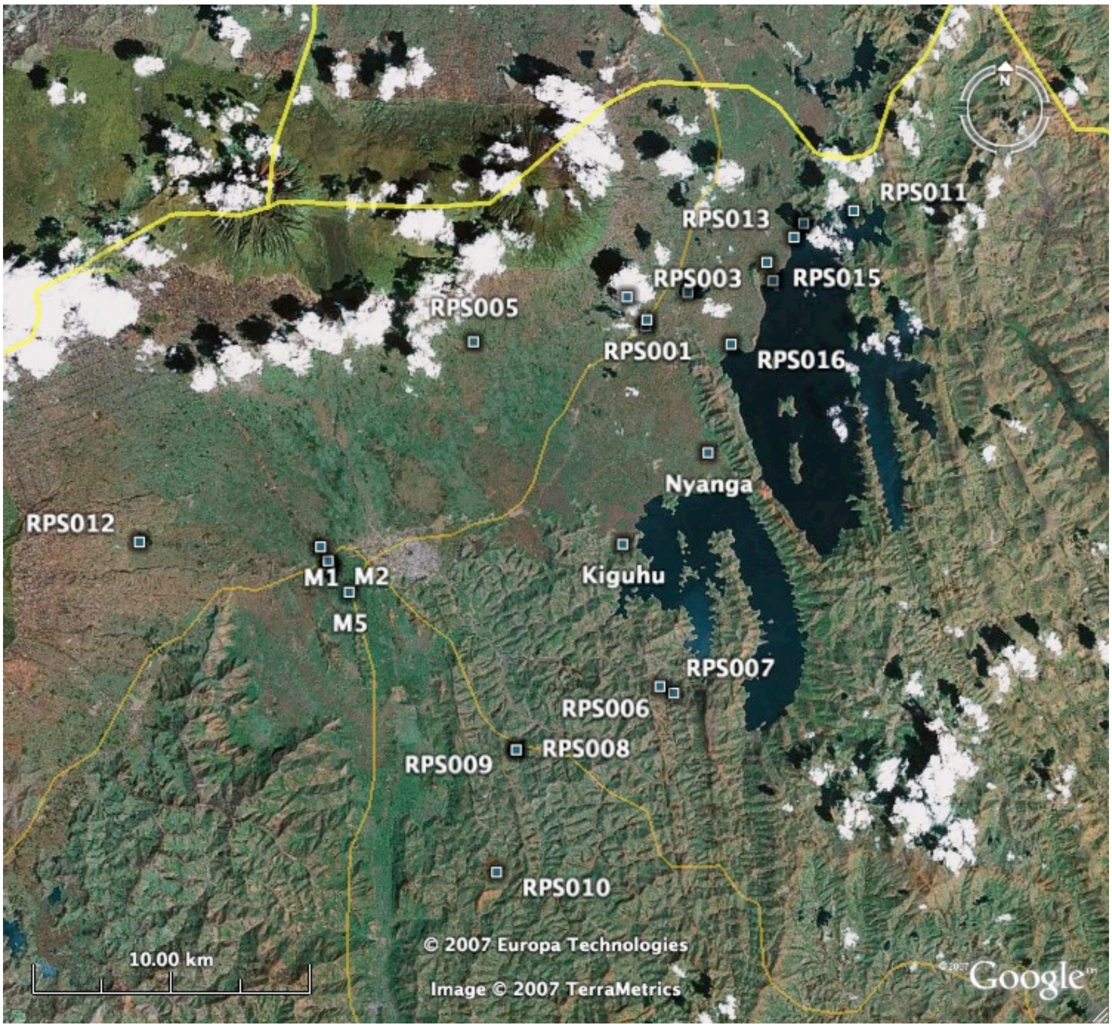

Fig. 8.2 Satellite image showing total sites identified in the northern survey zone

The landscape in the northern survey zone is very striking. The highest volcanoes rise to around 4000m above sea level, whilst their slopes descend approximately 2200m to the shores of Lake Bulera and Lake Ruhondo to the southeast. The smooth sides of the volcano and the western lakeshores are in stark contrast to the sharply undulating steep hills to the northeast and south of the lakes. The boundary of the Virunga National Park that skirts the base of the volcanoes, combined with the borders of the Democratic Republic of Congo and Uganda to the north, and the shores of the lakes to the east, prevented the establishment of a regular 15km x 15km survey zone. Therefore an irregular shaped survey zone was created that covered an approximately similar surface area but respected these political and natural boundaries. As in the southern and central study zones the survey followed all available track-ways, paths and roads including a survey of the shores of lakes Bulera and Ruhondo. However, the northern survey zone presented a range of new survey problems not seen previously. For example the volcanic geology, which characterises much of the surface geology of the area is extremely similar in appearance to iron slag, hindering the identification of iron production remains because they were not readily distinguishable at the surface. Where soil and sub-soil deposits do lie above the solidified lava they are extremely thin thus reducing the potential for sub-surface archaeological deposits. Furthermore, the eastern edge of the lakes is extremely steep, and the Nyabarongo river valley is an area of dense banana cultivation, preventing effective survey in both of these areas. These limitations and biases have reduced the interpretative potential of the survey results from the northern study zone. However, it is suggested that a conservative reading of the survey results reveals basic patterning distinct from that found in the other study zones that may be culturally significant.

The survey found that, unlike in the previous zones, sites in the north were not distributed evenly and instead clustered around particular areas. For example, the slope between the volcanoes and the lakes, where the geology is made up of large lava flows and very thin soils, with the exception of the volcanic caves and RPS001 and RPS002, was devoid of sites. Instead sites were located close to the lake, in caves or on different geology to the northeast and south of the lakes. The survey in the northern zone identified one new potential Early Iron Age site, RPS014, and re-identified three previously published sites, one with Urewe pottery, Masangano and two with potential Urewe variants, Bugarama and Kiguhu (see Fig 8.3) (Simon 1983; Van Noten 1983). None of the Early Iron Age Urewe sites in northern Rwanda were found in association with surface metal production remains and they were all located close to river or lakeshores, nestling beneath rock outcrops or higher altitude features. This represents a departure from the pattern seen in central and southern Rwanda.

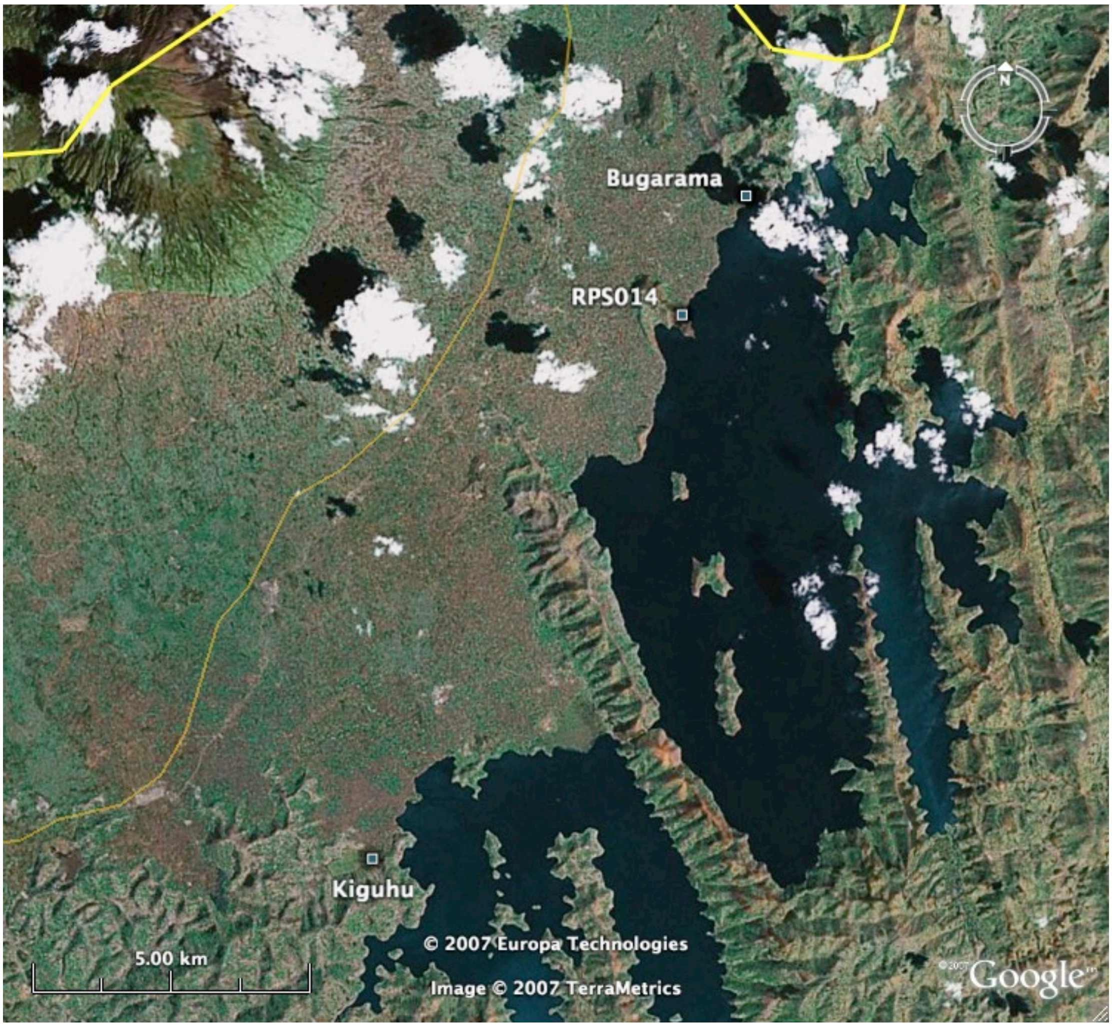

Fig. 8.3 Satellite image showing Urewe sites in northern survey zone

The survey identified twelve new sites with Late Iron Age roulette-decorated ceramics and five previously published sites Nyanga, Bugarama, Masangano, the Musanze Caves and Kiguhu Cave (Simon 1983; Van Noten 1983). The survey results suggest there was a shift in site location between the Early Iron Age and Late Iron Age in northern Rwanda. The Late Iron Age sites in the northern study zone are also distinctly different from those identified in central and southern Rwanda. For example, whilst twisted-string roulette-decorated ceramics and knotted-strip roulette-decorated ceramics were commonly found on the surface of these sites (Fig. 8.4), most sites were found in volcanic caves (Fig. 8.5) and only two sites with Late Iron Age ceramics were found in association with surface iron production waste, RPS001 and RPS002. Furthermore, whilst sites generally remain close to the lakes, sites also begin to appear in higher altitude zones on the volcanoes and there is a significant departure to the northeast and south where sites, such as RPS006 and RPS007 and RPS011, are located away from the volcanic geology. These sites are situated in a sharply undulating landscape similar to, but steeper than, that found in southern and central Rwanda, and the site elevation data clearly shows an increase in site elevation between the Early Iron Age and Late Iron Age (Figs. 8.6 and 8.7).

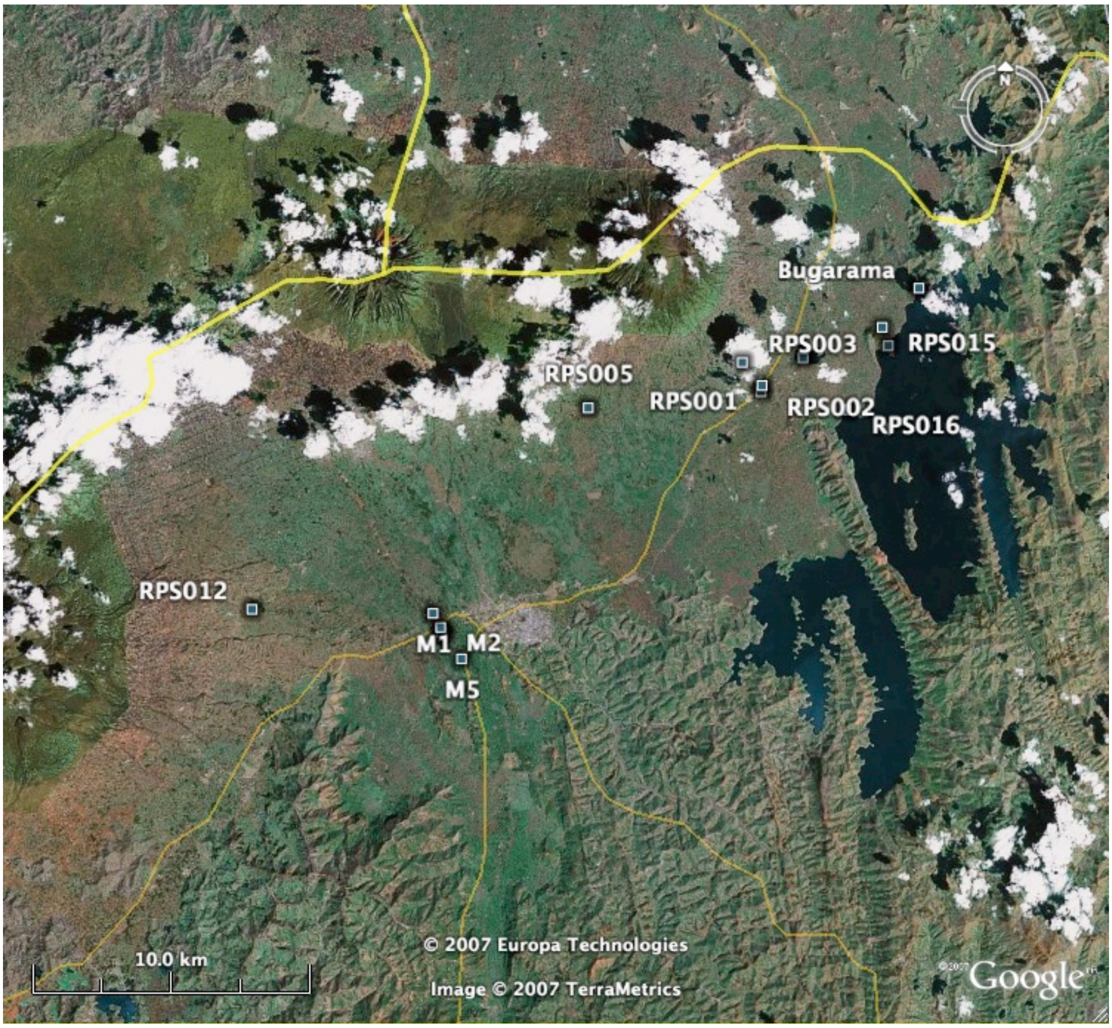

Fig. 8.4 Satellite image showing sites with twisted-string roulette-decorated sites identified within the northern survey zone

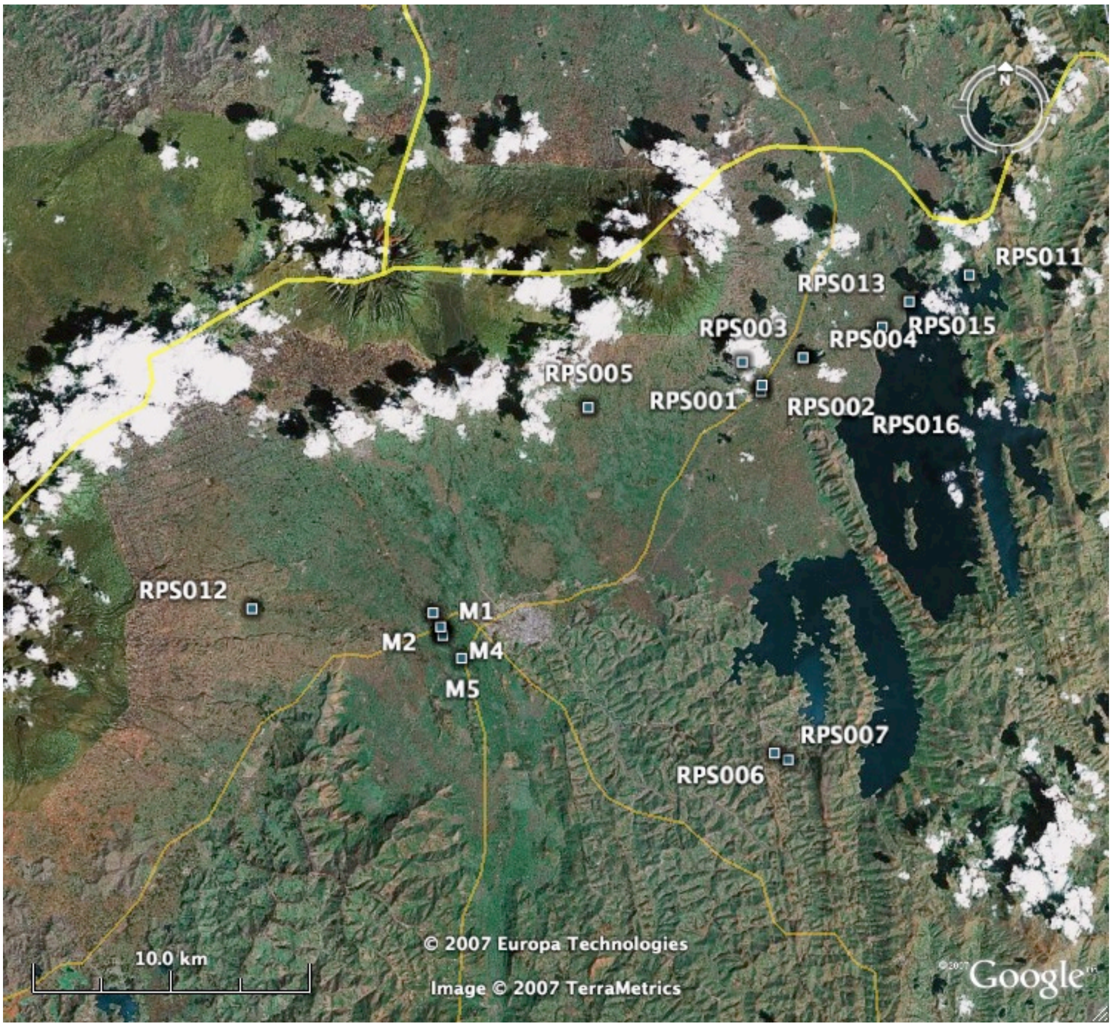

Fig. 8.5 Satellite image showing sites with knotted-strip roulette-decorated sites identified within the northern survey zone

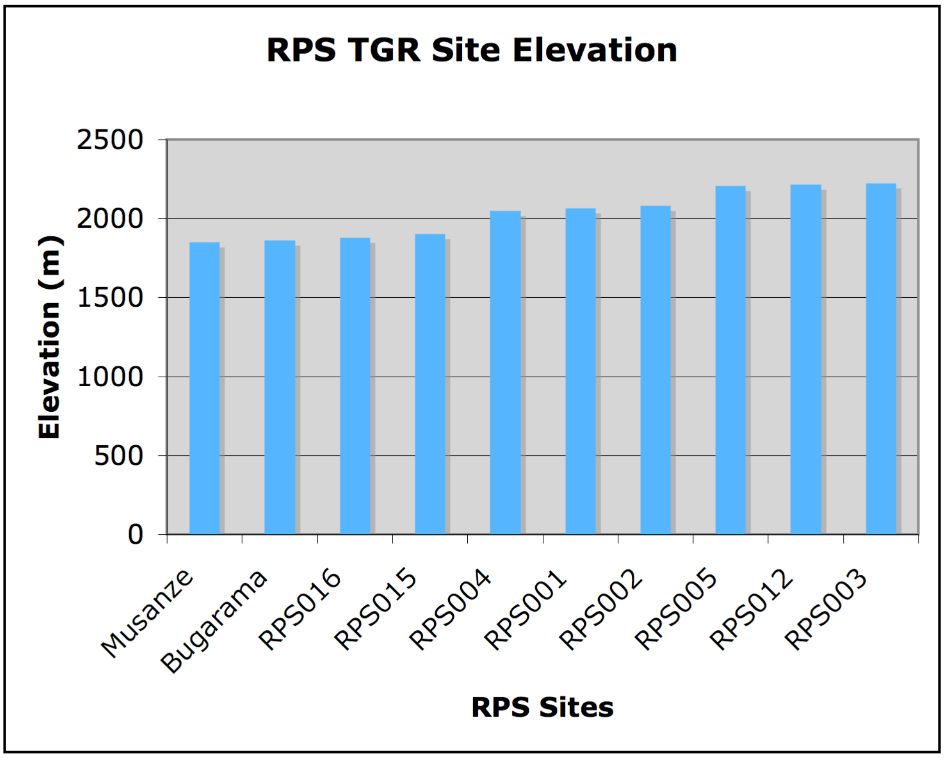

Fig. 8.6 Graph showing the elevation of twisted-string roulette-decorated sites from the northern survey zone

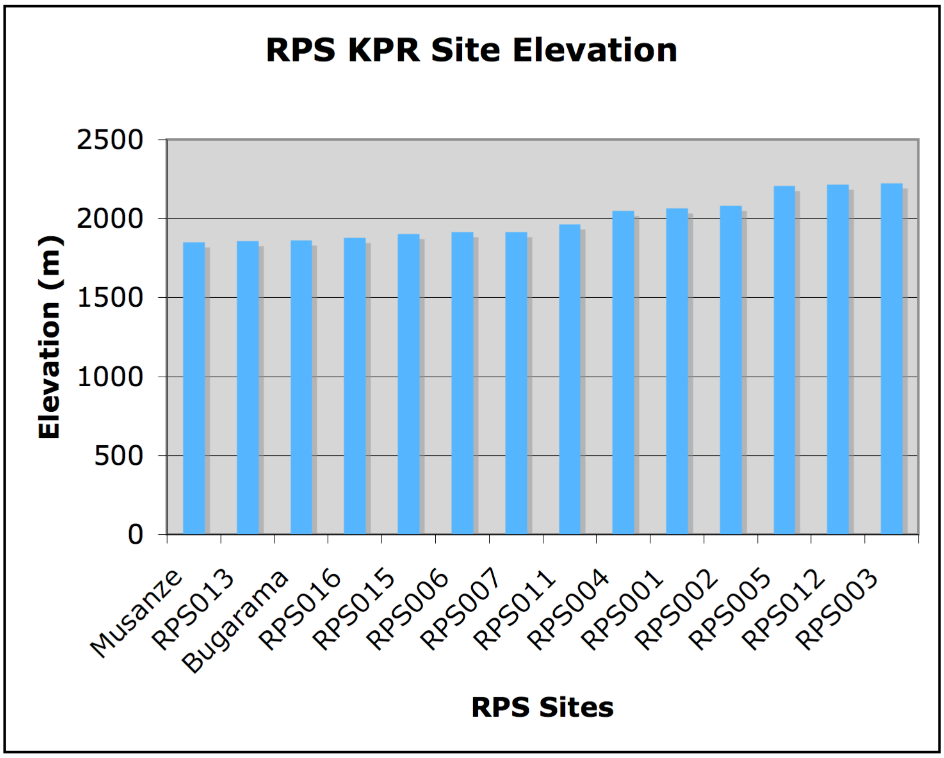

Fig. 8.7 Graph showing the elevation of knotted-strip roulette decorated sites from the northern survey zone

As in the southern and central zones, the relocation of previously published sites was an important element of the survey in northern Rwanda, whilst the general locations of these sites were identified with relative ease, the specific locations of the relevant deposits were again more difficult to identify. For example, the Musanze Caves are well known large geological features, but the names of the individual caves appear to have changed or been forgotten. Van Noten (1983: 34-35) reported excavations in two caves, Cyinkomane and Akameru, yet these names were not known by even the oldest of the local residents and these sites had to be re-identified based on published black and white photos taken of the cave entrances (Van Noten 1983: Plate 40). Both Masangano and Bugarama were easier to locate; Masangano has been revisited by archaeologists and geologists regularly and is a very well defined site at the junction of the Nyabarongo and Mukungwa rivers; and Bugarama was published with a detailed site map and accurate co-ordinates (Simon 1983). However, the co-ordinates published by Nenquin (1967a: 286) for Nyanga Cave located it in northern Burundi instead of northern Rwanda and this site had to be re-located based on a very general text description and map illustration. Even when the published co-ordinates for a site were correct it was not always possible to identify specific locations. For example, whilst Kiguhu was quickly relocated, without a detailed site plan it was virtually impossible to identify the specific area where the few published sherds had been found in a vast cultivated marshland.

Discussion

Despite the biases associated with the survey and the problems encountered whilst relocating sites, the survey in northern Rwanda has made an important empirical contribution to this research by successfully identifying a range of extant archaeological resources. Furthermore, based on a typological assessment of the surface assemblages, basic site distribution patterns have been identified. These include a preference in the Early Iron Age for lacustrine and riverine environments and an absence of sites in the higher altitude regions. However, during the Late Iron Age whilst some of these locations continue to be utilised sites begin to appear in caves and away from lakeshores and rivers. There was also a lack of iron production remains identified during the northern survey. Whilst the local volcanic geology may have obstructed the identification of these remains during the survey it is also likely that the local geology prevented iron production on the scale seen in the south and central zones because the necessary components for iron production were not in plentiful supply.

A much lower site density was also observed in the northern zone compared to the central and southern zones. It is suggested that this variation in density reflects environmental and historical differences between the zones. For example, the central and southern zones remained at the core of the Nyiginya Kingdom throughout the latter half of the 2nd millennium AD whilst the northern zone existed at the periphery of the kingdom for much of the similar period and was not fully incorporated into the kingdom until a period of aggressive expansion that occurred under King Rwabugiri in the late 19th century (Vansina 2004: 172). These unstable political circumstances combined with the dense equatorial rainforest that covered much of the northern zone until recently, and thin volcanic soils that still cover much of the area today, would have reduced the opportunities for survival in this region compared with more attractive opportunities further south. Even a fishing economy would have been more difficult here than elsewhere due to the volcanic biochemistry of the lakes which continues to prevent the establishment of a sizeable fish stock in the lakes today. These environmental and political factors may have reduced the possibilities for human colonisation of the area. The anomalies within the northern survey results cannot simply be explained by survey biases and it is believed that they relate to changing socio-cultural and environmental opportunities afforded to the Iron Age occupants of the region.

8.2 Northern Excavation Results

Due to the poor potential for sub-surface archaeological deposits in both the southern and central zones, the northern zone became the focus of the excavation season. The northern zone was known to have a number of sites with previously identified sub-surface deposits such as the Musanze caves, Masangano and Bugarama (Hiernaux and Maquet 1960; Nenquin 1967a; Van Noten 1983; Simon 1983) that were relevant to the research aims of this project. For example, caves are often assumed to be the historical refuge of forager groups, however, test units excavated in two of the Musanze caves, Cyinkomane and Akameru, during the 1970s (Gautier 1983: 104-120; Van Noten 1983: 33-35) revealed hunted remains alongside domestic species, with indirect evidence of agriculture in the form of grain harvesting knives and grinding stones. This presented an interesting context in which to investigate the subsistence economy and to establish if this was an isolated occurrence or if this was a wider phenomenon in northern Rwanda during the Late Iron Age. The cave excavations at Akameru in the 1970s also produced a late 1st millennium AD radiocarbon date from charcoal excavated from contexts with roulette-decorated pottery (Van Noten 1983: 35). This is the second earliest date ever published for Late Iron Age ceramics in the region - the earliest is an unreliable date from southern Rwanda (Van Grunderbeek 1992), which has since been questioned due to its high standard deviation (see Chapter 4 section 4.2). Thus, by collecting more dating material from a wide variety of caves this research aimed to establish a more confident date for the earliest occupation of these caves. The other sites were chosen so that material from a range of locations could be compared: Masangano was known, based on surface assemblages and the published material, to preserve a variety of Early Iron Age and Late Iron Age ceramics; Nguri Cave and Mweru Cave preserved substantial Late Iron Age surface ceramic assemblages in contrasting locations; RPS014 preserved an unusual incised ceramic type by the lakeshore; and based on Simon's (1983) illustrations (Van Noten 1983: Plates 92-95) it was believed that Bugarama might preserve ceramics dating to the terminal 1st millennium AD (see Chapter 4 section 4.4).

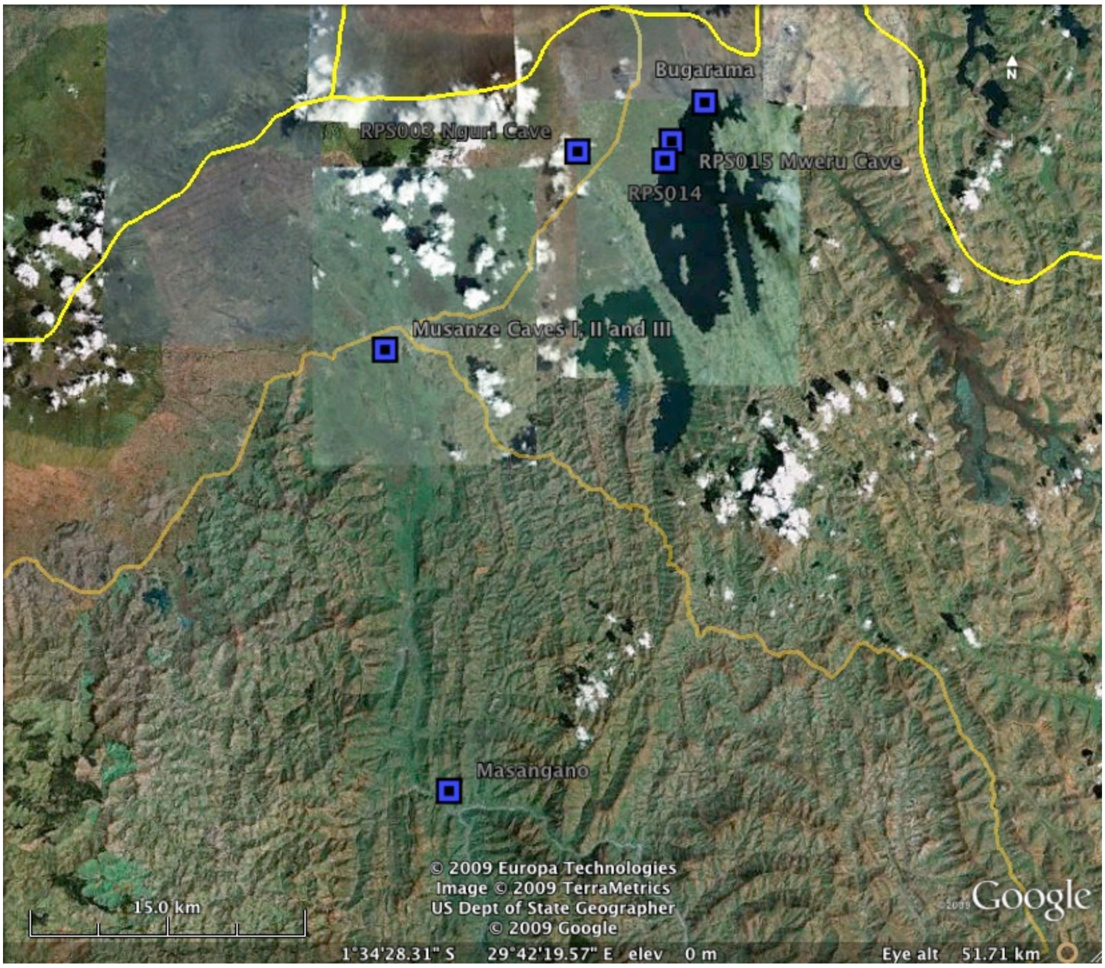

Fig. 8.8 Satellite image showing excavated sites in northern survey zone

In total eight sites, which include three cave entrances at Musanze, were excavated in the northern study zone (Fig. 8.8). However, excavations at two of these sites Bugarama and RPS014 were unsuccessful. Bugarama, identified and excavated by Simon (1983: 137-144), is located on the shore of Lake Bulera and according to

Simon's description and illustrations (Van Noten 1983: Plates 92-95) appears to have contained both Early Iron Age and Late Iron Age ceramics in a single sequence. Unfortunately, the lake levels have risen considerably since the previous excavations, possibly as a result of the construction of a hydroelectric dam, and much of the site has become submerged (Fig. 8.9). Due to the lake level rise we had to situate the excavation units away from both the water's edge and away from the most interesting areas of the previous excavations. Two 1x2m test excavation units were excavated at Bugarama at the base of an escarpment where large quantities of Late Iron Age ceramics were observed on the surface. Both units were excavated to approximately 0.8m before they became flooded and whilst both units encountered Late Iron Age twisted-string and knotted-strip roulette-decorated ceramics, both failed to reach any sealed contexts above the water table. Another lakeshore site RPS014, located at Mweru, was identified by the presence of incised ceramics seen at the surface. Two 1x2m test excavation units were excavated at RPS014 and these were explored until the lake-level was reached and the units became flooded but both units failed to encounter any archaeological deposits.

Fig. 8.9 Photograph showing lake level rises at Bugarama illustrated by a house that is nearly totally submerged in foreground

8.3 Case Study 3: Masangano

Masangano is one of the best known and most researched archaeological sites in Rwanda (Hiernaux and Maquet 1960; Nenquin 1967a; Van Noten 1983; Simonet 2004). The reason for this attention can be traced to its prominence in oral traditions (Kagame 1972, 1975), its unique and dramatic location and the prevalence of surface archaeological material and features. Masangano is situated at the confluence of the rivers Nyabarongo and Mukungwa (1°44´02.8 S, 29°39´23.2 E, 1422m above sea level) and covers an approximately 200 x 200m area on a low escarpment over-looking the rivers at the foot of a deep valley. The site was first mentioned in the archaeological literature by Hiernaux and Maquet (1960) who excavated a test unit there and this work was followed up in 1961 by Czikan who carried out some small-scale excavations on behalf of the Rwanda Geological Survey (Nenquin 1967a: 266). Unfortunately, neither Hiernaux and Maquet's, nor Czikan's excavations were ever fully published. Furthermore, believing these reports to be imminent, Nenquin (1967a: 266-267) only briefly described his surface finds collected in 1960. Nenquin's (1967a: 266) summary of his and Hiernaux and Maquet's work reports the occurrence of quartz implements of the Wilton type in association with "Dimple-based ware" (Early Iron Age, Urewe ceramics) at a relatively shallow depth and that "B-Ware" (Late Iron Age roulette-decorated pottery) was also found on the surface and in the "humic" layer (Nenquin 1967a: 266). The site was not returned to archaeologically until Van Noten (1983: 24, 36) conducted small-scale trench excavations in the late 1970s. Van Noten reported a range of Stone Age and Iron Age materials but did not encounter any secure stratigraphy and concluded that these finds had been mixed due to agricultural disturbance. Numerous informal site visits have taken place since this early work and this can be measured by the growing collection of finds that have accumulated at the National Museum of Rwanda. The only other excavations known to have taken place at Masangano are those undertaken by Celine Simonet (2004) on behalf of the Institute National Musée de Rwanda (INMR). This work again revealed the presence of quartz stone tools, Early Iron Age Urewe ceramics and Late Iron Age roulette-decorated ceramics. However, Simonet, unlike Van Noten, reported distinct context changes, suggesting that the site had not been uniformly disturbed and that areas of undisturbed stratigraphy still existed.

Today, whilst it is clear that Masangano has been subject to heavy disturbance through cultivation, where the land is clear of crops it is still possible to identify distinct areas of past human activity preserved as depressions, raised areas and/or changing soil colours. An intensive transect, pedestrian, site survey revealed areas of find concentrations amongst a range of archaeological deposits visible at the surface. However, due to INMR commitments with other archaeological institutions, that limited where we could place our units, we focused our excavations at the southern end of the site in two distinct and contrasting deposits. Test unit A was located at the edge of the site next to a steep slope above the river confluence. The surface deposit here was sandy and contained a number of large Urewe sherds. Test unit B was located to the north of test unit A on top of a raised area of very dark, bluish-black soil close to where Simonet's excavations are believed to have taken place. The locations of Simonet's test units were not well reported in the document submitted to the INMR and we relied upon local people and surface anomalies to direct us to them. This strategy allowed us to explore a new area of the site whilst also maximising the potential for the recovery of suitable data by excavating a known deposit that was reported to contain preserved stratigraphy.

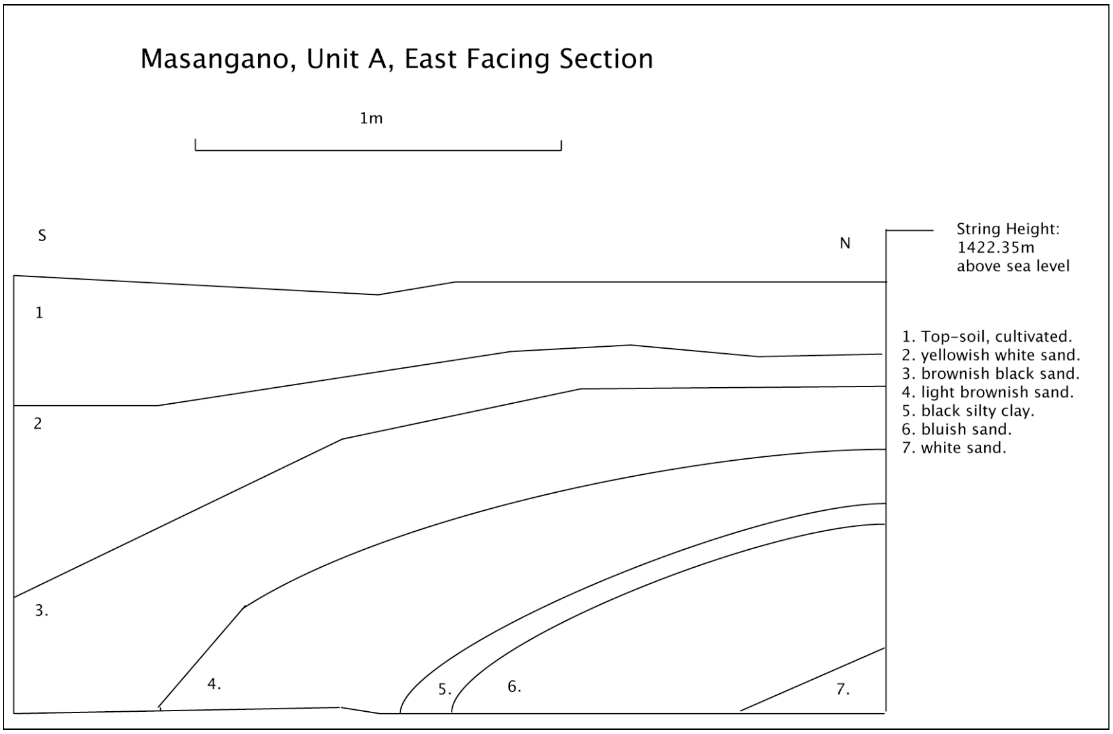

Fig. 8.10 Illustration showing east-facing section from unit A, Masangano

Test excavation unit A, a 2x1m trench, was excavated to a depth of 1.2m. Yet, despite the presence of Urewe style ceramics on the surface and to a depth of 0.2m, unit A encountered no significant archaeological deposits. Below the loose surface sands at 0.2m, unit A contained a series of sterile sand deposits (Fig 8.10). The excavations in test unit A were discontinued at a depth of 1.2m after 1m of sterile deposits had been excavated. There were no environmental or radiocarbon samples taken from unit A as no suitable contexts or materials were encountered.

Test excavation unit B began as a 1x2m trench but was twice extended to the west to follow an archaeological horizon and to increase the size of the archaeological assemblage recovered. The deposits encountered in unit B were distinctly different from those recorded by Simonet nearby and a more detailed account of the 2004 excavations is needed to better understand this anomaly. Unit B contained three well-defined archaeological deposits above natural clay and sands (Fig. 8.11). The most recent archaeological deposit, a bluish black, silty-clay [B1] that had suffered significant disturbance through cultivation, contained only very rare roulette-decorated pottery, and quartz flakes. Beneath this was a bluish-black, sub-soil [B2] that was more compact than the previous layer and which contained very rare incised pottery, quartz flakes and iron slag. The surface soil and sub-soil sealed an archaeological horizon beneath [B3]. This secure archaeological deposit was a brownish black clayey-silt that contained frequent incised pottery, rare charcoal, poorly preserved bone, occasional quartz flakes and a single bone bead. Environmental and radiocarbon samples were taken from this deposit, however, the other deposits encountered were not sampled due to the high probability of disturbance and contamination through cultivation. The excavations in unit B encountered a sterile deposit of brown clay [B4] immediately beneath the archaeological horizon. However, exploratory excavations were continued in the eastern end of unit B to a depth of 2m. The sterile clay was found to sit above a thin calcareous deposit and sterile sand beneath [B5].

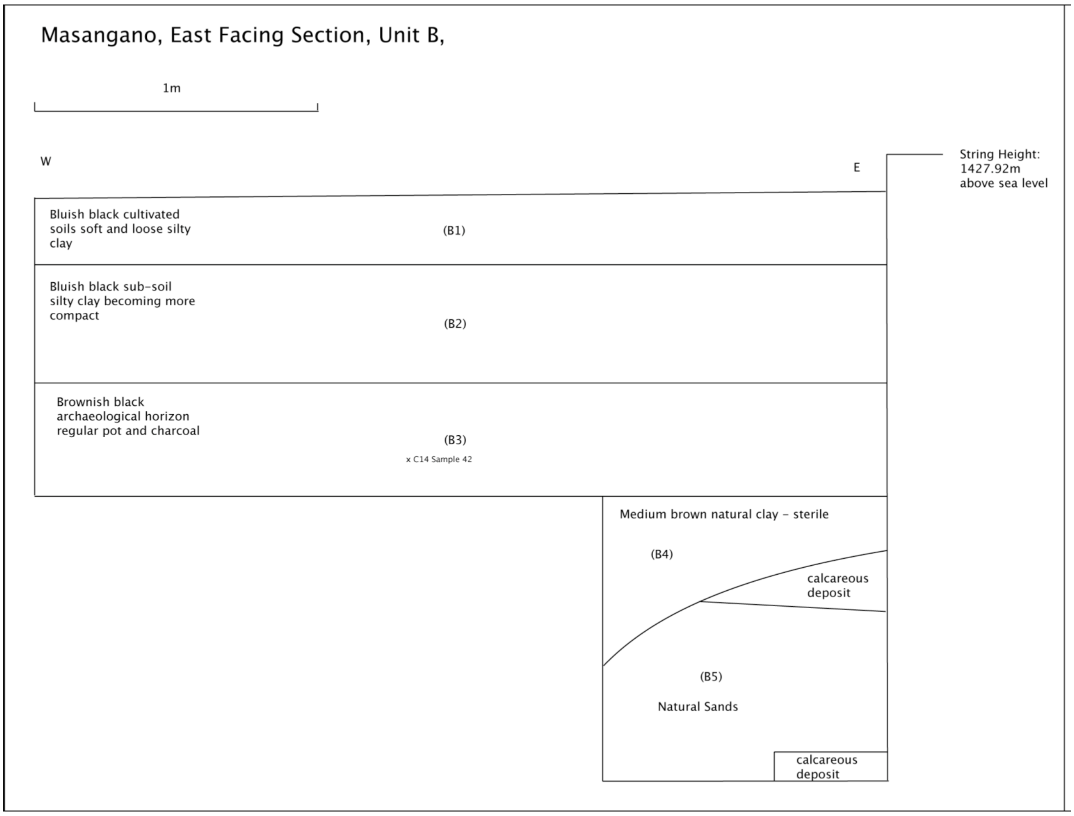

Fig. 8.11 Illustration showing east-facing section of unit A, Masangano

Whilst the excavations in unit A failed to encounter any archaeological deposits, they have helped to expand our understanding of the stratigraphy across the site. The few large Urewe sherds that were identified at the surface of this unit were probably the result of secondary deposition, transported there by cultivation. Based on the ceramic remains the archaeological horizon [B3] identified in unit B was dated to the 1st millennium AD, and the later contexts, [B1] and [B2], disturbed by agriculture, were identified as mixed deposits containing rare 1st and 2nd millennium AD incised and roulette decorated ceramics.

Despite Masangano's prominence in Rwandan archaeology, no absolute date has previously been produced for the site. Thus a charcoal sample from the undisturbed context [B3] with incised ceramics was sent for radiocarbon analysis and this returned a mid 1st millennium AD date (Fig. 8.12).

Sample No.	Context	Date BP	Calibrated date (2 sigma)
OxA-19520	Archaeological Horizon	1698 ± 27 BP	266 – 534 AD

Fig. 8.12 Table showing radiocarbon results from unit B Masangano

This date suggests that the archaeological horizon fits within the Early Iron Age, Urewe using, period in Great Lakes Africa. This date also places Masangano in a chronologically comparable position to BPS036/Kabusanze in southern Rwanda. Therefore, the investigation here will focus on the assemblage from the archaeological horizon in unit B and the comparison of these results with those from Kabusanze.

8.4 Palaeobotanical, Zooarchaeological and Other Finds

There were no environmental samples taken from test excavation unit A at Masangano and no zooarchaeological material was identified during the excavation of this unit. Environmental samples were taken from the Early Iron Age archaeological horizon in test excavation unit B but no palaeobotanical remains were recovered during processing of these samples. Whilst zooarchaeological remains were identified and recovered from unit B these were extremely fragmented or degraded which prevented identification. The lack of well-preserved zooarchaeological and palaeobotanical material, in contrast to other Early Iron Age sites in this study, such as BPS036/Kabusanze and GPS014/Karama (see Chapters 6 and 7, sections 6.6 and 7.5-6), may be the result of the moist rich humic soils at this site, which would have helped these materials biodegrade. There was only one small find recovered, a shell bead, that was identified in the disturbed upper levels of test excavation unit A and this is of little interpretative value because these so far undiagnostic artefacts are ubiquitous at Iron Age sites in Great Lakes Africa. Therefore, in the absence of any other data sets, the focus of the research at this site is the incised ceramics that dominate the excavated assemblage. Initial analysis suggested that these are distinct from the Classic Urewe from Kabusanze but have some similarities with the potentially devolved material from Karama.

8.5 Ceramic Analysis

The ceramics from test excavation unit B have been divided into two groupings, those from the topsoil [B1] and subsoil [B2], and those from the Early Iron Age archaeological horizon [B3]. The probability of disturbance and mixing between the topsoil and subsoil means that there is little purpose in distinguishing between these two assemblages on the basis of stratigraphy. However, the archaeological horizon beneath appears to be undisturbed and so will be dealt with separately. Following the methodology set out in Chapter 5 the ceramic analysis will again be divided into technological and morphological profiles.

Technological Profile

Within the assemblage from Masangano were identified ten different fabrics, MSG1 – MSG10. The prefix here refers to Masangano. The properties for each fabric are listed below (Fig. 8.13):

Fabric	Physical properties and effect	Decoration	Attribution
MSG1	Dark reddish black, irregularly oxidised, sandy texture with 5-10% coarse to fine mica, <5% and quartz sand.	Incised	Urewe
MSG2	Grey oxidised, sandy textured with 10% coarse to fine sand mica and 1% quartz.	None	Unknown
MSG3	Orangey brown, irregularly oxidised, sandy texture with 5% coarse to fine mica and <5% angular quartz.	Incised	Urewe
MSG4	Black, unoxidised, sandy texture with 5% poorly sorted coarse to fine sand mica and 1% poorly sorted angular coarse sand quartz.	Incised	Urewe
MSG5	Orangey brown, oxidised, sandy to smooth, with rare inclusions: 2% Fine to coarse to fine sand quartz and mica.	Incised	Urewe
MSG6	Greyish orangey brown, irregularly oxidised with poorly sorted 5-10% fine to pebble, sub-angular and angular mica and <5% poorly sorted angular coarse sand quartz.	Incised	Urewe
MSG7	Greyish brown sandy to smooth texture, irregularly oxidised with <5% well sorted fine sub-angular mica and 1% poorly sorted granular to coarse sand angular quartz.	Incised	Urewe
MSG8	Pinkish greyish brown oxidised with 25% very poorly sorted, fine, granular and pebble sub-angular quartz and 5% fine mica sand.	None	Unknown
MSG9	Orange, oxidised, sandy texture with moderately well sorted 10% sub angular medium mica sand and 10% angular medium sand quartz.	Knotted-strip roulette	Late Iron Age
MSG10	Pink to grey, irregularly oxidised, smooth texture with <5% moderately well sorted fine sand sub angular mica inclusions.	Twisted-string roulette	Late Iron Age

Fig. 8.13 Table showing the fabric groups identified in the Masangano assemblage

The total assemblage recovered from the excavations at Masangano was limited in size and weighed only 2.9kg, with the majority of this coming from the Early Iron Age archaeological horizon (2.2kg). Ten different fabric types were identified within the Masangano assemblage. However, some of these fabrics are very rare and may be related, for example the fabrics MSG2, MSG3, MSG6 MSG7, MSG8, MSG9 and MSG10 only account for 7.5% of the entire assemblage. It is possible that these groupings represent idiosyncrasies and inconsistencies in one of the other better defined and more dominant fabric groups. The remainder of the total assemblage was dominated by MSG1 (39%), MSG4 (28.5%) and MSG5 (11.5%). The fabric frequency is quite different when the upper, disturbed deposits, [B1] and [B2] are separated from the Early Iron Age archaeological horizon [B3] beneath. The assemblage from the upper levels was made up of MSG4 (80%), MSG10 (6%), MSG9 (2%) and a miscellaneous group (12%), whilst the assemblage from the archaeological horizon was made up of MSG1 (53.5%), MSG5 (15%), MSG4 (9%), MSG6 (3%), MSG7 (2%), MSG2 (1%) and MSG8 (0.5%). This distribution suggests that fabric preference changed between the Early and the Late Iron Age at Masangano. For example, fabrics MSG9 and MSG10 only appear in the later deposits and are associated with Late Iron Age roulette decoration. Whilst it is possible that the presence of MSG4 in both the Early and Late Iron Age contexts may suggest ceramic continuity between these periods, this remains very speculative due to the high potential for contamination through cultivation in these upper deposits. The technological profile of the Early Iron Age assemblage from Masangano can also be compared with the profile from Kabusanze in the south. For example, the Masangano assemblage from the archaeological horizon was dominated by a single fabric group, MSG1, as was the Kabusanze assemblage. The two sites are similar both in the restricted number of fabric types but also in the broad similarity in fabric type of B1 from Kabusanze and MSG1 from Masangano. However, a comparison of their morphological profiles demonstrates a high level of variation between the two.

Morphological Profile

Twenty-one reconstructable vessels were recovered from the excavations at Masangano, two from the upper levels [B1] and [B2] and nineteen from the Early Iron Age archaeological horizon. Both of the vessels from the upper levels fit the Early Iron Age Urewe typology and therefore, due to the limited size of the assemblage, these will be included and analysed with the Early Iron Age assemblage. Two major vessel forms dominate the reconstructable assemblage from Masanagano, open bowls (38%) (Fig. 8.14, d and 8.15, e) and hemispherical bowls (28.5%) (Fig. 8.16, i), with the remainder of the assemblage made up of everted neck jars (9.5%) (Fig 8.15, a), closed bowls (9.5%) and straight necked jars (5%) (Fig. 8.17). The frequency of forms at Masangano presents a 14.5:85.5 ratio of jars to bowls which is in direct contrast to the 60:40 ratio Ashley's (2005) on the northern shores of Lake Victoria and with Van Grunderbeek's (1988) work in southern Rwanda (discussed in Chapter 4 section 4.4).

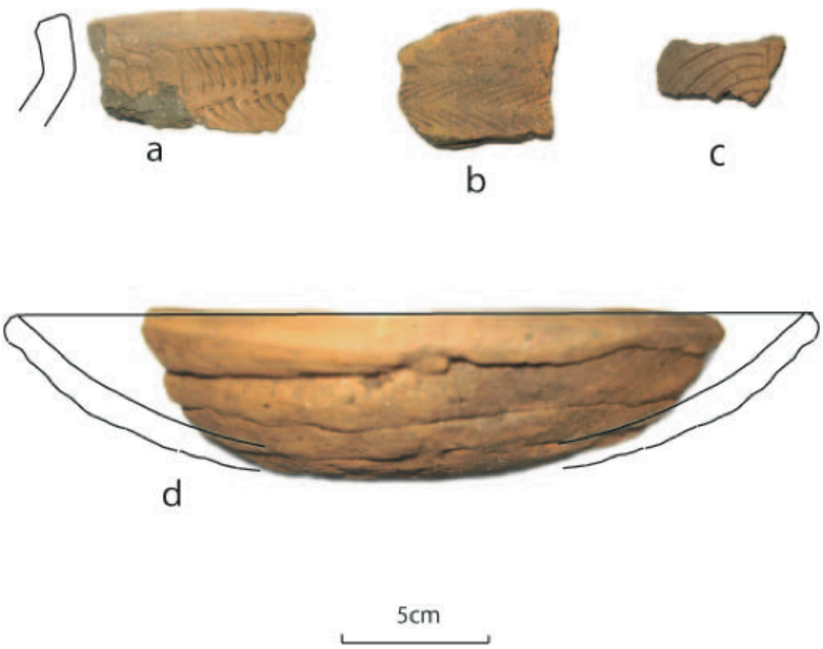

Fig. 8.14 Illustrated photograph showing ceramics from Masangano [B3], including a rocker-stamped rim (a), a herring bone incised sherd (b), a Classic Urewe incised sherd (c) and a Boudiné open bowl (d)

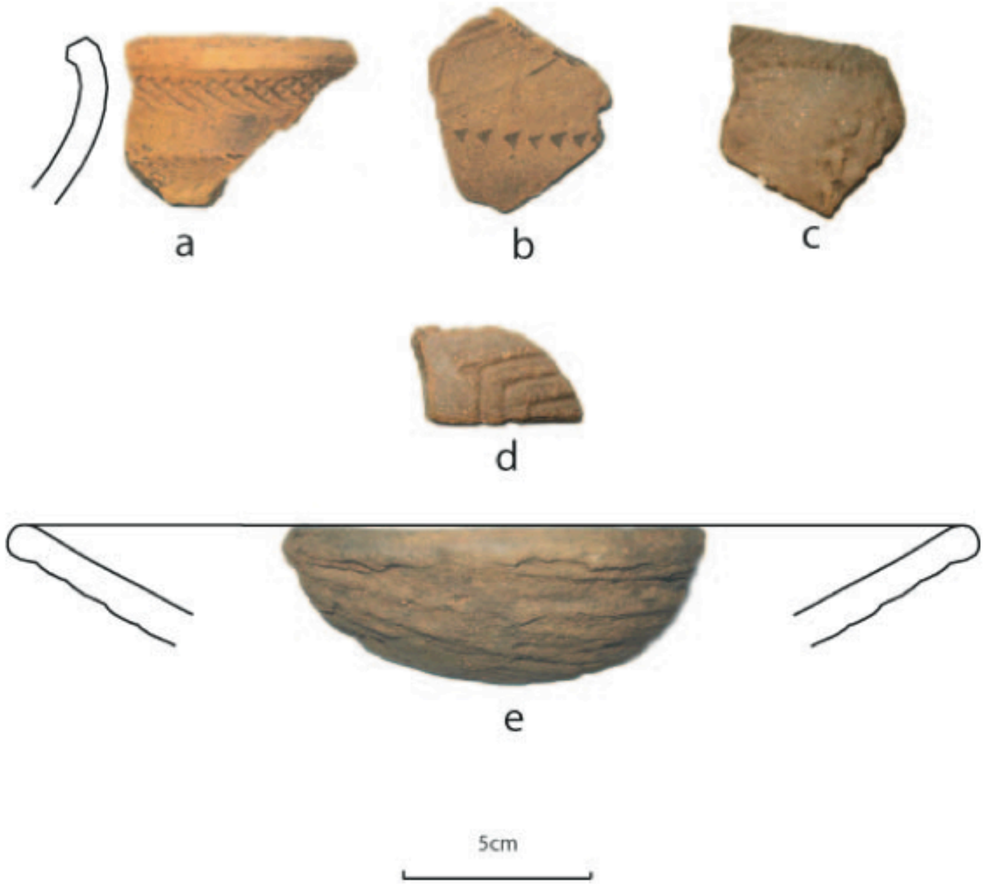

Fig. 8.15 Illustrated photograph showing ceramics from Masngano [B3], including a Classic Urewe bevelled and crosshatched rim (a), a punctate sherd (b), a fingernail impressed sherd (c), a Classic Urewe incised sherd (d) and a Boudiné open bowl (e)

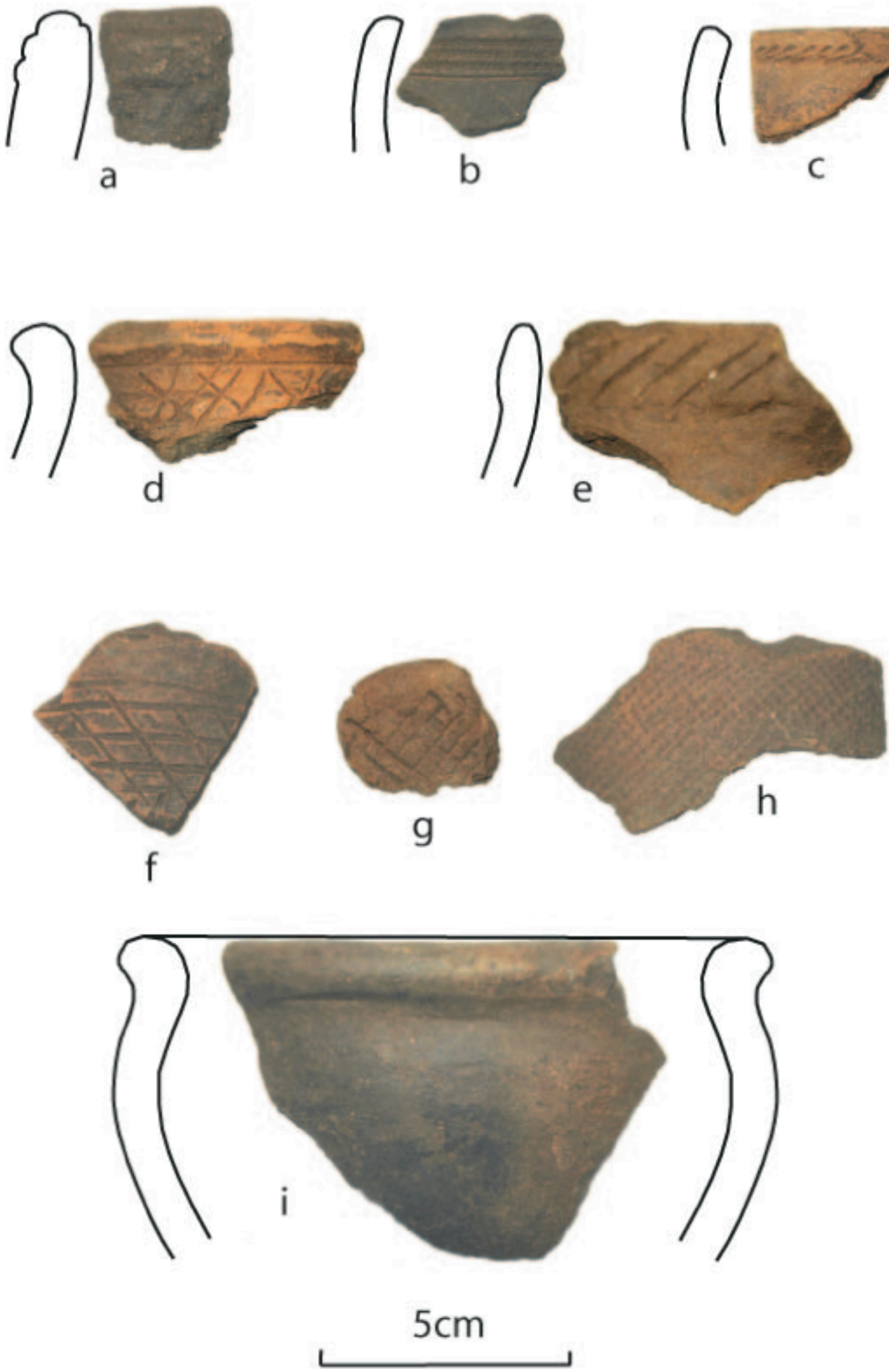

Fig. 8.16 Illustrated photograph showing ceramics from Masangano [B3] including a multiple bevelled rim (a), Classic Urewe incised sherd (b), a stab-drag sherd (c), a crudely incised, "Devolved Urewe" rim (d), a simple rounded and incised rim (e), crudely incised sherds (f and g), a "stamped" sherd (h) and a plain open bowl (i)

Fig. 8.17 Illustrated photograph showing straight necked jar from Masangano with oblique incisions around neck

	MSG1	MSG4	MSG5	MSG7
Globular everted neck jar	100%	0%	0%	0%
Straight necked jar	0%	100%	0%	0%
Hemispherical bowl	50%	16.6%	0%	33.3%
Open bowl	75%	12.5%	12.5%	0%
Closed bowl	0%	100%	0%	0%
Beaker	100%	0%	0%	0%

Fig. 8.18 Table showing distribution of forms relative to fabrics (n=21) from Masangano

	MSG1	MSG4	MSG5	MSG7
Jars	50%	50%	0%	0%
Bowls	65%	17%	6%	12%

Fig. 8.19 Table showing simplified distribution of forms relative to fabrics (n=21) from Masangano

The distribution of vessel form relative to fabric group (Figs. 8.18 and 8.19) demonstrates a preference in jars and bowls for specific fabrics. The globular jars and beakers are entirely confined to fabric MSG1, and the straight-necked jars and closed bowls are entirely confined to fabric MSG4, whilst the remaining bowl forms have been made from a variety of fabrics. However, this is a very small assemblage and these associations cannot be confirmed without investigating a larger sample.

The rim type frequency distribution is also in contrast to that seen in the Kabusanze assemblage (Fig. 8.20). At Kabusanze bevelled rims dominated the assemblage (88%) with the remainder made up of rounded (8%) and squared rims (4%), whilst at Masangano rounded rims dominate the assemblage (62%) with bevelled rims (19%), squared rims (14%) and tapered rims (5%) accounting for the remainder. There were also no complex bevelled rims recovered from Masangano unlike at Kabusanze where 29% of the reconstructable vessels displayed four or more bevels.

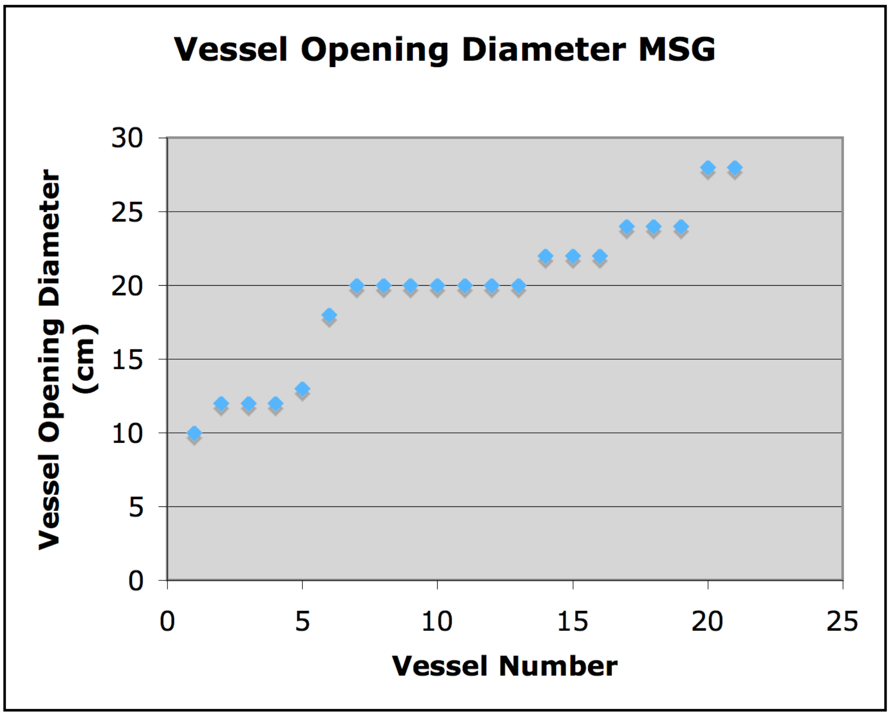

Fig. 8.20 Graph showing vessel opening diameters for reconstructable vessels from Masangano

Twenty-one reconstructable vessels from Masangano were sufficiently complete to allow a rim diameter to be estimated for them. The results of this analysis (Fig. 8.20) show that whilst the smallest sizes (10cm) exist at Masangano, the largest sizes seen at Kabusanze (e.g. 40cm) are not present in this assemblage and the widest vessel openings at Masangano, in the 25-30cm range, are associated with open bowl boudiné ceramics. The difference between the remaining Masangano assemblage and the Kabusanze assemblage can be attributed to the higher frequency of small bowls at Masangano compared to Kabusanze. However, it is notable that larger jars were identified during previous excavations (e.g. Hiernaux and Maquet 1960; Van Noten 1983: Plate 37) and thus this assemblage may not be representative of the site.

	Incised oblique	Incised cross hatched	Rocker stamp	Punctate linear	Boudine
Jar	2	2	0	0	0
Bowl	3	1	1	1	2

Fig. 8.21 Table showing the distribution of decoration type relative to form at Masangano

There were twelve reconstructable vessels with decoration identified at Masangano and many of the decorative styles seen in this assemblage are consistent with those expected for Urewe, such as oblique incised and incised cross hatching (Fig. 8.21). However, the presence of crude rocker-stamping (Fig. 8.14, a), crude linear punctuates (Fig. 8.15, b) and boudiné decoration (Figs. 8.14, d and 8.15, e) are unexpected. None of these applications were observed in the Kabusanze assemblage and are not part of the generally expected Urewe typology. Perhaps the most unexpected is the boudiné, a crude type of decoration that appears to show the unsmoothed ceramic coils on the outer surface of the vessel formed during the production of the vessels. There are clear similarities between this style of decoration and that seen at sites such as Murchison's Falls (Soper 1971; Connah 1997) and Kansyore Island (Chapman 1967) in Uganda. However, boudiné has never been identified in Rwanda before. Although similar ceramics have been illustrated by Van Noten (1983) from Kabuye.

The full decorative scope of the Masangano assemblage only becomes clear when decoration is considered in the total analysed assemblage from the archaeological horizon [B3]. The total assemblage consisted of two hundred and ninety-three sherds and ninety-eight of these displayed decoration. Of the decorated sample seventy-five were incised, nine had punctate decoration, three were comb-stamped, two were in a boudiné style, two had fingernail impressions and one had stab-drag decoration. Within the incised group there were multiple examples of fingernail impressed sherds (8.14, c), herringbone incision (Fig. 8.14, b), crosshatching (Fig. 8.15, a), triangular punctate (Fig. 8.15, b) and incised circular motifs (Fig. 8.14, c). Whilst there are again clear decorative parallels with the established Urewe typology, for example the incised circular motifs are extremely similar to those seen in Kabusanze, the existence of fingernail impressed and boudiné application is unexpected.

An analysis of the various decorative zones showed that decoration is always contained on the neck or lip and there are no examples of interior decoration or body decoration. There were also no bases recovered from the assemblage at Masangano.

Although Masangano is first mentioned by Hiernaux and Maquet (1960) the ceramics mentioned are only briefly described and illustrated. There are also no published reports on the ceramics from Hiernaux's or Czikan's excavations. However, there are illustrated ceramics from Nenquin's (1967a) brief review of surface ceramics collected in 1960. Nenquin (1967a: 266) described and illustrated one rim sherd with a heavily bevelled rim, incised cross hatching on the neck and a second shoulder sherd with cross hatchings above a series of parallel horizontal grooves and hanging triangles. Nenquin (1967a: 266) assigns these to dimple-based "A-Ware" and both of these are clearly within the Classic Urewe type. The remaining sherds include pieces with vertical and wavy line incisions that Nenquin assigns to "C-Ware". The only other published account of ceramics from Masangano is Van Noten's (1983: 23-24), who also encountered Classic Urewe or "Type-A" pottery with multiple bevels on the rims, incised cross hatching, chevrons, and hanging triangles. However, within the ceramics he assigned to "Type-A", an Early Iron Age grouping, there are also examples of ceramics with more irregular incised lines, punctates, stab-dragged punctate and rocker-stamping, sometimes alongside the expected bevelling that Van Noten (1983: 35-36) refers to as non-Urewe Early Iron Age ceramics. These ceramics compare well with those found in the archaeological horizon at test excavation unit B (discussed in detail in Chapter 9 section 9.4).

8.6 Summary

When combined with the published material the ceramic assemblage from Masangano fitted well with a Classic Urewe typology. There was a range of bevelled rims, both complex and simple, a restricted fabric range, with a range of vessel forms and incised geometric motifs. However, it is clear that in contrast to these continuities there is significant variation. There is a severe contrast in the ratio of jars to bowl forms, a reduction in the ratio of bevelled to non-bevelled rims and the inclusion of unexpected decoration types such as fingernail impressions and boudiné. Whilst, the dating evidence combined with the general characteristics of this assemblage place it well within the Urewe ceramic tradition, the ceramic anomalies must be addressed. It is suggested here that this assemblage includes Classic Urewe ceramics; contemporary, or post-Urewe, less well-executed Urewe type ceramics; alongside related boudiné ware. This may be the result of various groups, with differing but related ceramic traditions using the same site; the same group using the same site but changing ceramic styles over time; or the importation of different ceramics from the wider region. This mixture may in part be related to the geographic position of Masangano. Masangano is located at the confluence of two major rivers just to the south of the Virunga Volcanoes and sits at the meeting point of two very different geographic landscapes. Thus, due to its position at a crossroads, in well watered and fertile grounds, this historically popular location may have encouraged the meeting of a number of co-existing traditions at this location in the 1st millennium AD and later.

This assemblage makes an important empirical contribution to our understanding of ceramic distribution in the Early Iron Age in Great Lakes Africa, summarized below:

- The first radiocarbon-dated deposit from Masangano that dates the earliest context encountered [B3] to the early to mid 1st millennium AD, which places this deposit within the Early Iron Age in Rwanda and Great Lakes Africa.
- The identification of discrete archaeological deposits at Masangano and the identification of an undisturbed archaeological horizon.
- The establishment of a dated Urewe ceramic assemblage at Masangano, demonstrating that Urewe users were not confined to hilltop locations, in contrast to the results from southern and central Rwanda.
- The tentative identification of related Urewe variants at a single site, within a single dated deposit.

8.7 Case Study 4: The Musanze Caves, Musanze District, Rwanda

The Musanze caves are a series of large volcanic features located to the west of Ruhengeri (1 30 S – 29 36 E). Nenquin (1967a: 275-6) was the first to note the archaeology in the caves. He visited the caves and recorded surface finds including traces of possible hut-circles, “B-Ware” and “Modern Ware” (roulette-decorated pottery), and a large collection of human skulls. The skulls were analysed by Brabant (1963) and were believed to be the product of conflict in 1914-1918 and the subsequent use of the cave as a cemetery. Prior to this research the only excavations to have taken place in the caves were those undertaken by Van Noten (1983: 34-35). Van Noten excavated a test unit in two of the caves, Cyinkomane and Akameru, in the late 1970s. In both test excavation units Van Noten encountered approximately 2m of deposit containing “B-Type” and “C-Type” ceramics (roulette-decorated pottery), animal bones, quartz blades and iron objects. The animal bones were analysed by Gautier (1983: 104-120) and the assemblages were found to have both herded and hunted species present. A charcoal sample was taken from the earliest context at Akameru and this produced a date of 875 ± 95 AD (Van Noten 1983: 35) (discussed in Chapter 4 section 4.2).

Based on these published reports, the Musanze caves were chosen for re-investigation because they presented an opportunity to work at a readily locatable site, with well-defined stratigraphy and a variety of subsistence remains amongst a range of Late Iron Age material culture.

The specific research aims for this case study were:

- To relocate Cyinkomane and Akameru where Van Noten excavated.
- To excavate a range of previously unexplored neighbouring caves in order to collected comparative material.
- To collect zooarchaeological samples to investigate Gautier's (1983) findings.
- To collect a ceramic assemblage to explore Van Noten's "B-Type" and "C-Type" roulette-decorated ceramics.
- To collect dating material from the earliest archaeological contexts to investigate Van Noten's early potentially erroneous date for the Late Iron Age in northern Rwanda (see Chapter 4 section 4.2).
- To take environmental samples from the cave to investigate the plant foods exploited by the occupants of the caves.

Whilst it was not possible to relocate Akameru and Cyinkomane based on their names alone, because there are multiple cave entrances in the area and these names have now been forgotten, it was possible to re-locate them based on published photographs (Van Noten 1983: Plate 40). Alongside Akameru and Cyinkomane, five other cave entrances were identified during the survey that were deemed suitable for excavation: having large enough entrances and living areas for human occupants; including excavation spaces not obstructed by large rock falls from the ceiling; and preferably without regular modern activities such as cultivation taking place (banana plants are often planted immediately inside and around the caves). The identified cave entrances were numbered Musanze I – V. Upon return to the caves in the second season Musanze I and Musanze IV were found to be occupied by large colonies of bats and so were deemed unsuitable for excavation at that time. Thus, the three remaining cave entrances, Musanze II, III and IV, were selected.

All of the caves are located within 100m of each other and whilst they each have their own idiosyncrasies they are generally very similar, all having entrances between 5 and 10m wide and ceiling heights of the same dimensions. The caves all had a large quantity of twisted-string roulette-decorated pottery on the surface alongside rare knotted-strip roulette-decorated pottery, and some contained animal and human bone remains. The "hut-circles" encountered by Nenquin (1967a: 274-276) were not identified but low dry-stone walls were found immediately inside each of the cave entrances. The local explanation for these walls suggests that they were put there to prevent rebel soldiers using the caves during recent conflicts. Although this seems improbable because the walls were never more than 0.8m tall in caves with ceilings approximately 10m tall, the same story was repeated in all of the caves we visited in northern Rwanda.

The test excavation units were positioned by selecting an area away from the drip line of the cave, in a flat central area not disturbed by rock falls. The test units in all of the caves were excavated to bedrock except unit A in Musanze II which had to be discontinued due to earlier rock falls that prevented further excavation. All of the caves had extremely good bone preservation and the excavations consistently produced large quantities of Late Iron Age roulette-decorated ceramics, wood charcoal and animal bones, alongside bone beads and a range of metal objects.

8.8 Musanze II

Excavations at Musanze II, located at southing 01.30.338, easting 029.36.869 and elevation 1868m. Two 1x2m test units were excavated in the cave (Fig. 8.21). Test excavation unit A was dug to a depth of 1m. The excavations in unit A were discontinued before natural bedrock or natural gravel deposits were reached. The excavation had to be ceased due to the presence of many large rocks covering the base of the unit. Instead of extending this trench a new unit was started in a different area because an extension to unit A may have encountered more rocks. Within unit A, a number of well-defined contexts were identified (Fig. 8.22). The first context [A1] was a soft grey, clayey-silt with frequent pot and bone. This context sat above a hard white calcareous layer [A2] that sealed a greyish brown, silty-sand with frequent pot and bone [A3]. This context sat above another calcareous band that sealed a deposit of brown clayey silt containing rare finds [A4].

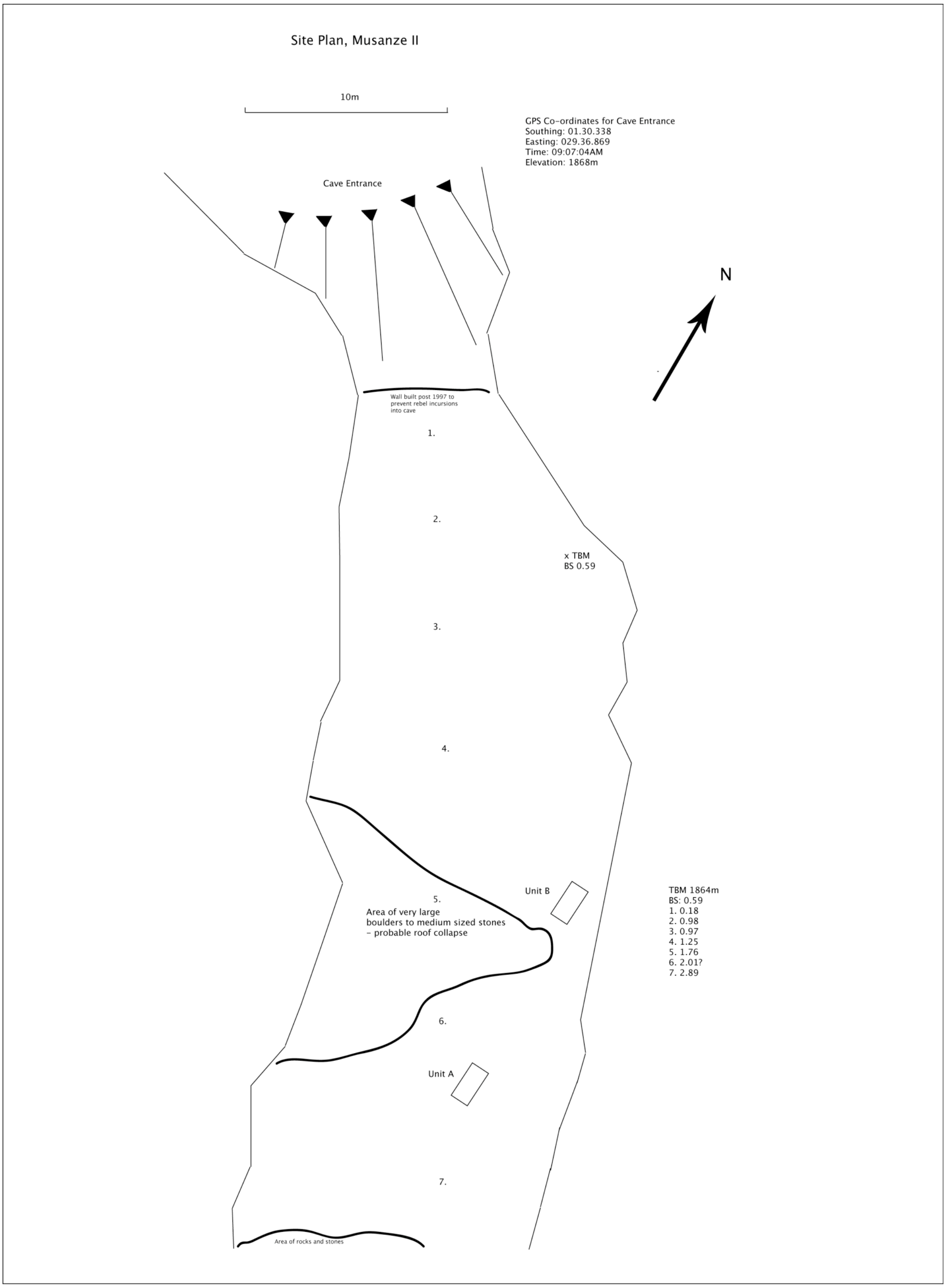

Fig. 8.21 Illustration showing site plan for Musanze II

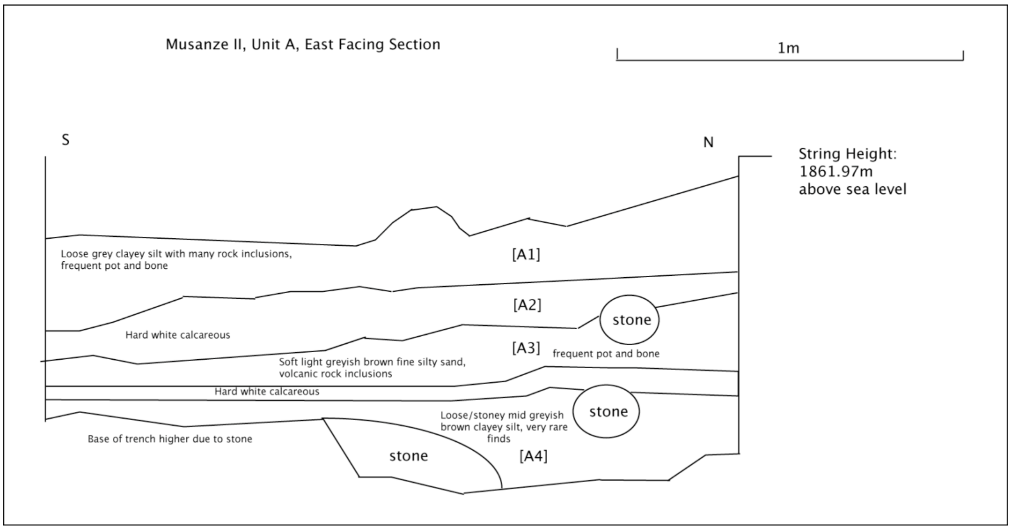

Fig. 8.22 Illustration showing east-facing section of unit A, Musanze II

Test unit B was excavated to a depth of 1.6m above natural gravels and bedrock (Fig. 8.23). Beneath the rain damaged surface deposit of mixed clayey-silt [B1] was a large 1m deep deposit of soft medium blackish-brown, clayey-silt with occasional lenses of white calciferous material [B2]. Whilst frequent pot, bone and charcoal were recovered from this context the quantity of finds reduced dramatically. Beneath this context was a large horizontal deposit of white calciferous material that sealed the earliest archaeological context [B3] below, which contained a very high frequency of pottery, bone and charcoal amongst other finds.

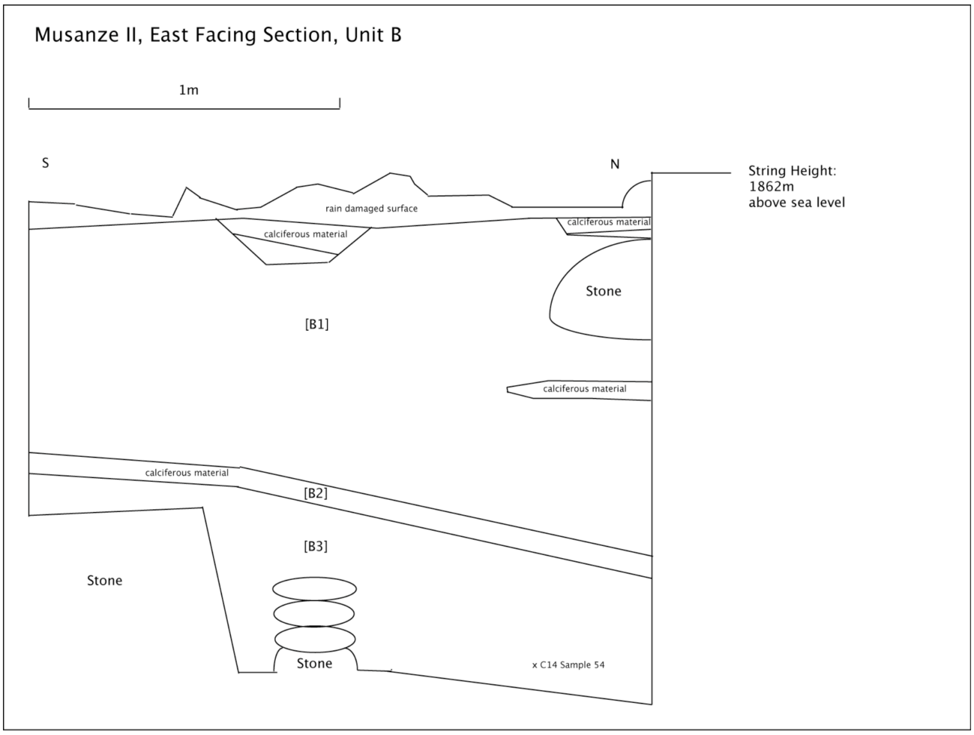

Fig. 8.23 Illustration showing east-facing section of unit B, Musanze II

The ceramic assemblage from Musanze II consisted almost entirely of Late Iron Age twisted-string roulette-decorated ceramics, with only two reconstructable knotted-strip vessels coming from the most recent deposit in unit B. Twisted-string roulette decorated ceramics were present from the very earliest to the latest deposits. A charcoal sample from the earliest stratigraphic deposit in unit B, which was sealed beneath a hard calciferous deposit, was radiocarbon dated and this sample generated an early 2nd millennium AD date (Fig. 8.24), suggesting that Musanze has been occupied since the beginning of the Late Iron Age.

Radiocarbon Sample	Context	Date BP	Calibrated date (2 sigma)
OxA-19521	Earliest archaeological deposit unit B, Musanze II [5]	956 ± 26 BP	1040 – 1201 AD

Fig. 8.24 Table showing the radiocarbon date from Musanze II

8.9 Ceramic Analysis

The Musanze caves are extremely close together and are often linked through large volcanic tunnels. For this reason a single set of fabric groupings has been established for use with all three of the cave entrances (Fig. 8.25). Following the methodological position set out in Chapter 5 the ceramic analysis will be divided into technological and morphological profiles.

Technological Profile

Within the assemblage from the Musanze caves were identified twelve different fabrics M1 – M12. The prefix here refers to Musanze. The properties for each fabric are listed below:

Fabric	Physical properties and effect	Decoration	Attribution
M1	Black, unoxidised, with fine to medium sub angular sand mica inclusions (10%), medium quartz sand (<1%)	Twisted-string roulette	Late Iron Age
M2	Orangey pink, oxidised with varying amounts of fine sub angular mica (0-10%)	Twisted-string roulette	Late Iron Age
M3	Brown/black unoxidised, fine to medium sub-angular mica sand (5%), coarse to granular angular volcanic rock (1%) and coarse angular quartz sand (1%)	Twisted-string roulette	Late Iron Age
M4	Reddish brown, irregularly oxidised, sandy textured, with fine to coarse sub angular poorly sorted mica (5-10%)	Twisted-string roulette	Late Iron Age
M5	Black very fine burnished ware, unoxidised, fine well sorted sub angular mica (<5%)	Twisted-String roulette	Late Iron Age
M6	Black/Reddish Black irregularly oxidised, with pebble to granular grog inclusions (5%), fine to coarse sand sub angular mica sand, with rare quartz and volcanic rock inclusions (1%).	Twisted-string roulette	Late Iron Age
M7	Red/Black irregularly oxidised, very poorly sorted mica (15%), quartz (5%), volcanic and grog (1%)	Twisted-string roulette	Late Iron Age

	inclusions.		
M8	Light brown, smooth, irregularly oxidised, fine well-sorted mica inclusions (<5%) and sub-rounded medium to coarse grog (<5%).	Twisted-string roulette	Late Iron Age
M9	Orangey grey gritty, with fine to medium mica sand inclusions (15%).	Twisted-string roulette	Late Iron Age
M10	Orangey brown, oxidised, with rare mica and grog inclusions.	Twisted-string roulette	Late Iron Age
M11	Grey, oxidised, gritty textured, with fine to medium mica sand (15%).	None	Unknown
M12	Yellow, oxidised, with fine sub-angular mica (<5%).	Twisted-string roulette	Late Iron Age

Fig. 8.25 Table showing the physical properties of the fabrics from the Musanze Caves

The total assemblage recovered from the excavations at Musanze II was large, weighing 23.95kg. Nine different fabric types were identified within the Musanze II assemblage. One fabric dominated the total assemblage; M1 (44%) and the remainder consisted of M4 (15.5%), M7 (11%), M6 (6.5%), M2 (5%), M3 (1.5%), M10 (1%), M5 (0.5%), M11 (0.5%) and a miscellaneous group (14.5%). The frequencies of fabrics between the excavations units were found to be broadly similar with M1, M4, and M7 again dominating both. Test excavation unit A encountered four stratigraphic deposits, the earliest of these [A4] only contained a very limited ceramic assemblage, 10 sherds (0.05kg), which were assigned to three different fabric types M1 (10%), M6 (70%) and M7 (10%). The size of the assemblage increased but was still quite limited in the next earliest deposit [A3] (0.29kg) and contained five different fabric groups M1 (46.5%), M2 (1.5%), M4 (33%), M6 (5%), and M7 (14%). There was a considerable increase in the assemblage size in the next earliest deposit [A2] (4.5kg) but the fabric types, if not the frequency, remained the same M1 (17%), M2 (8%), M4 (47%), M6 (10.5%), M7 (8.5%) and a miscellaneous group (9%). In the most recent deposit [A1] the assemblages remained large (3.52kg) and whilst two of the fabric groups, M6 and M7, were no longer represented three new fabric groups appear, M3, M5 and M11. This assemblage was again dominated by M1 (55%) with the remainder made up of M2 (9%), M3 (8%), M4 (7.5%), M5 (0.5%), M11 (3.5%), and miscellaneous (16.5%). The frequency of fabric distribution across the deposits from test excavation unit A suggests a limited range of fabric types increasing over time and whilst there is continuity between all the stratigraphic deposits, for example the persistence of M1 and M4, there are potentially significant variations with the disappearance of fabrics M6 and M7 in the latest deposit – represented in all three other deposits – and the appearance of three new fabric types, especially the appearance of M5, a very fine and distinctive fabric.

The excavation in test unit B encountered two separate deposits with ceramic assemblages, the earliest [B3] of which was radiocarbon dated to the early 1st millennium AD. This early deposit contained 6.66kg of ceramics that consisted of fabrics M1 (26.5%), M7 (26%), M6 (14%), M4 (10%), M2 (3%) and miscellaneous (20.5%). In the later larger deposit [B1] a ceramic assemblage weighing 8.92kg was recovered and this consisted of M1 (67%), M4 (6.5%), M7 (4.5), M2 (3%), M10 (2.5%), M5 (1.5%), M6 (1.5%), M3 (0.5%) and miscellaneous (13%). As seen in test excavation unit A, the variety of fabrics employed increases in the later deposit and whilst fabric M11 was not identified fabrics M3 and M5 appears. These results continue to suggest that fabric selection increased over the Late Iron Age occupation of this cave and that the fine fabric, M5, was only accessed or produced by the occupants of Musanze II during its later occupation.

Morphological Profile

Forty-two reconstructable vessels were recovered from the excavations at Musanze II, four from test excavation unit A and thirty-seven from test excavation unit B. All of the vessels fit the Late Iron Age roulette-decorated typology. However, there are notable anomalies such as the presence of decorated handles (Fig. 8.26), and the appearance of very fine twisted-string roulette decoration associated with fabric M5. The total reconstructable assemblage from Musanze II consists of four vessel forms; globular everted neck jars (44%) (Fig. 8.27), straight necked jars (29.5%), closed bowls (14.5%) and hemispherical bowls (12%). This distribution shows a clear preference for larger storage vessels with 73.5% of the assemblage consisting of jars and only 26.5% of bowls. This may reflect the greater importance of collecting and storing water at a location away from any major suitable water sources or may reflect a food preparation system that was not reliant on serving vessels, such as roasting. The assemblage from Kabusanze also suggests that whilst a range of fabric choice was available to the cave's occupants, the forms were very limited.

Fig. 8.26 Photograph showing a handle from Musanze II

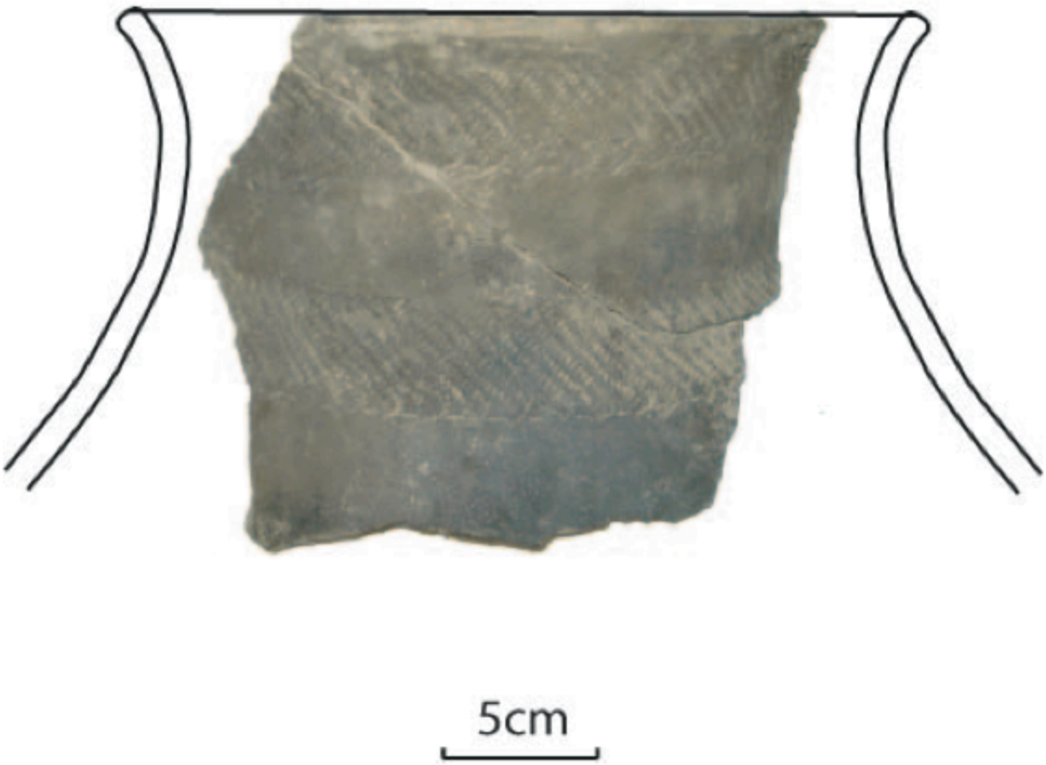

Fig. 8.27 Illustrated photograph showing an everted neck jar from Musanze II

	M1	M4	M5	M6	M7	M11	Misc
Everted neck jars	73.33%	0%	0%	6.66%	13.33%	0%	6.66%
Straight necked jars	26.66%	26.66%	0%	20%	20%	0%	6.66%
Hemisherical Bowls	75%	0%	0%	0%	25%	0%	0%
Closed Bowls	0%	0%	85.71	0%	0%	14.28%	0%

Fig. 8.28 Table showing the distribution of forms relative to fabrics from Musnze II (n=42)

The distribution of fabric relative to form (Fig. 8.28) across the total assemblage suggests that whilst fabrics M1 and M7 are used for a variety of forms, M4, M5 and M11 are restricted to single forms. This is especially significant for M5, which makes up 85.71% of all the closed bowls identified.

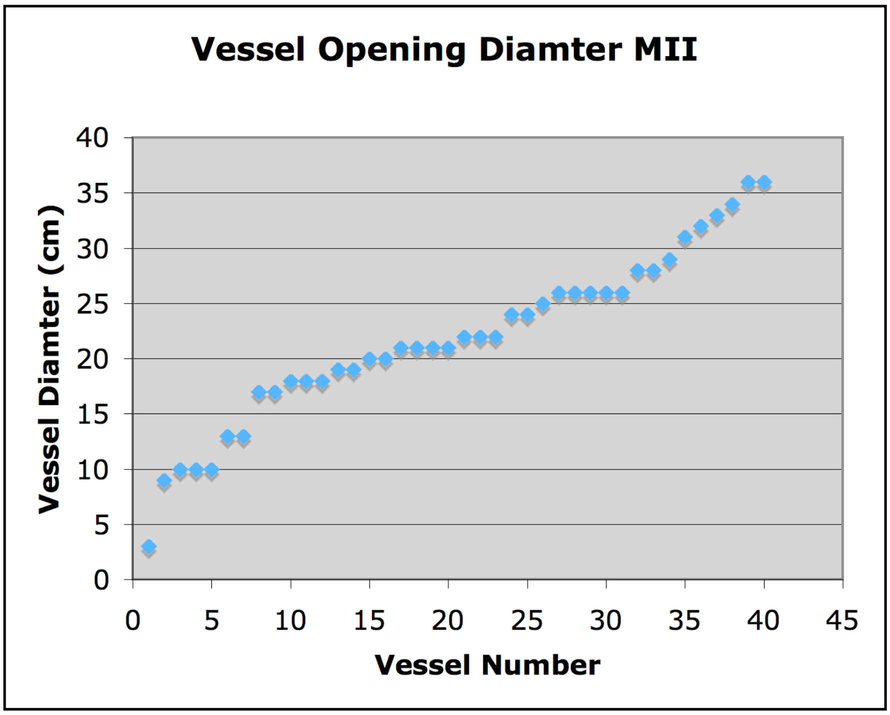

Fig. 8.29 Graph showing vessel opening diameters for the reconstructable vessels from Musanze II

Musanze II produced forty vessels that were sufficiently complete to allow the opening diameter to be estimated (Fig. 8.29). This analysis showed a broadly even frequency distribution from approximately 10 to 35cm. (The small vessel opening, 3cm, correlates to a very small closed pot). However, 60% of the vessels fall in the 17-26cm ranges and suggest a slight preference for this middle range. A brief consideration of vessel form relative to vessel opening showed no significant pattering. For example, jars were found to have opening sizes including the smallest to the largest diameters, and whilst open bowls did not include the smallest openings, as may be expected, they also displayed a wide diameter range. Changes in vessel diameter between contexts were also considered but no significant variation was identified.

	Squared rim	Rounded rim	Tapered Rim	Thickened Rim	Folded Rim
Everted necked jar	10	5	0	0	2
Straight necked jar	11	2	0	2	0
Hemispherical Bowl	0	0	3	1	0
Closed Bowl	0	0	6	0	0

Fig. 8.30 Table showing frequency of rim types relative to form from Musanze II

As expected from a Late Iron Age ceramic assemblage, bevelled rims are not represented. Instead, simple squared, rounded and tapered rims, with rare examples of thickened and folded rims, dominated the reconstructable assemblage (Fig. 8.30). Whilst the absence of bevelled rims is notable, the assemblage is not completely unlike the rims seen in the Early Iron Age assemblage from Masangano where rounded, squared and tapered rims were common alongside bevelled rims.

The decorative range from Musanze II is extremely limited being completely confined to Late Iron Age rouletting. For this reason the decorative analysis here will focus on the variations within this application, especially its position and direction, relative to form. Only two reconstructable vessels from the most recent deposit in test excavation unit B [B1] displayed knotted-strip rouletting with the remainder exhibiting twisted-string roulette decoration. Within the total site assemblage out of 355 decorated sherds only 30 exhibited knotted-strip roulette decoration and these were again only from the most recent deposits in the test excavation units. For these reasons the analysis here will focus on the twisted-string roulette decorated assemblage and its application because the knotted-strip roulette assemblage is too limited in size to reveal potentially significant patterning.

The clearest difference in twisted-string roulette decoration application is the angle at which it is applied relative to the rim, generally this is either applied diagonally left or diagonally right from the rim, although it may also be applied horizontally, vertically or very rarely in a combination of these.

	Diagonally left	Diagonally right	Horizontal/Mixed
Everted neck jar	12	6	0
Straight neck jar	10	2	0
Hemispherical bowl	2	0	0
Closed bowl	0	0	6

Fig. 8.31 Table showing frequency of twisted string roulette direction at Musanze II relative to form

An analysis of the frequency of twisted-string roulette direction relative to form (Fig. 8.31) shows that whilst the left diagonal is more frequently used the assemblage is too small to suggest a meaningful pattern. However, the direction of application relative to the closed bowls does appear to show a preference for mixed rouletting.

This is potentially significant as all of the closed bowls in this analysis are from the M5 fabric grouping, which continues to suggest that this may represent a typologically distinct sub-group within the more general Late Iron Age ceramic typology for this region.

	Lip	Neck	Body	Internal
Everted neck globular jar	11	13	4	5
Straight necked jar	11	9	5	5
Hemispherical Bowl	1	1	0	2
Closed Bowl	0	0	6	0

Fig. 8.32 Table showing the frequency of incidences of decoration relative to location at Musanze II

By tabulating the occurrence of decoration on the decorative zones there appears to be a preference for decoration of the vessel upper region, although there are examples of decoration across the possible range (Fig. 8.32). However, the closed bowls – all from fabric group M5 - show a more defined location grouping on the vessel body. Further demonstrating the restricted nature of this type and the potential that it represents a new example of Late Iron Age roulette decoration in these caves.

Six bases were identified in the total assemblage, however it was not possible to attribute a vessel form to the bases. The bases were all rounded, with three examples of thickening on the inside and one flat based with a raised area on the inner surface. There were four handles identified within the assemblage, three were made from single coils and one from three coils, and all were decorated with twisted-string rouletting. The only surface treatment observed on any of the vessels was burnishing applied to all of the fabric M5 closed bowls.

The ceramic assemblage from Musanze II compares well with the general Late Iron Age typology for the region and it is also quite similar to that published by Van Noten (1983: Plates 42 and 44) for the Musanze caves, including twisted-string rouletting, rounded bases and roulette-decorated handles. However, far from simply re-affirming Van Noten's assemblage this analysis has developed our understanding of the ceramics in the Musanze caves by the possible identification of a well-defined sub-type of Late Iron Age roulette-decorated ceramics, the very fine, black, M5 burnished ware.

8.10 Zooarchaeological Analysis

The caves produced the largest zooarchaeological sample out of all the excavated sites. They contained a wide range of zooarchaeologcial remains including wild and domesticated species. However, because Musanze II unit A was discontinued due to a rock fall the zooarchaeological sample from this unit is a lot smaller than those from the other caves. In the first two contexts [A1] and [A2] no zooarchaeological remains were recovered. A zooarchaeological sample was recovered from the following context [A3] although it was very small and only one specimen was identified to genus, a burnt duiker (*Cephalophus*) radius. The remaining specimens could only be identified to *bovidae* Bovid Size Class 3 (Fig 8.33). There were five unidentified fragments from this context.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid Size Class 3	Scapula			Fragment		4	1
	Pelvis			Fragment			
	Long bone			Fractured shaft			
	Calcanium	Left		Fragment			
Cephalophus	Radius	Right	Fused	Proximal shaft	Burnt	1	1

Fig. 8.33 Table showing the identified zooarchaeological remains from [A3] Musanze II

The earliest context [4] also had a very small zooarchaeological sample, only three specimens were identified from an assemblage of eight, leaving five unidentified fragments. These three specimens could only be attributed to Bovid Size Class 3 (Fig. 8.34).

Taxon	Element	Aging	Part	NISP	MNI
Bovid Size Class 3	Rib		Fractured Shaft	3	1
	Metacarpal	Fused proximal	Fractured Shaft		
	Pelvis		Fractured Shaft		

Fig. 8.34 Table showing the identified zooarchaeological remains from Musanze II [A4]

In unit B, beneath the surface deposit of silt and calcareous/liming/leaching from the cave ceiling, was a large deposit [B1] containing a substantial zooarchaeological assemblage (Fig. 8.35). Three hundred and forty-two specimens were recovered and from these one hundred and seventy-six of these were identified. The assemblage is dominated by *bovidae* both wild and domestic but also includes *carnivora*, *rodentia*, birds and *suidae*. Within this deposit [B1] Bovid Size Class 5 was represented by twenty-six specimens, Bovid Size Class 4 by four specimens, Bovid Size Class 3 by sixty-four specimens, Bovid Size Class 2 by one specimen and Bovid Size Class 1 by six specimens, this spread suggests that the animals exploited fall between the medium and larger size ranges. Which is to be expected because these are likely to give the largest nutritional return per individual. The domestic species are represented by cattle (*Bos taurus*), goat (*Capra hircus*) and sheep (*Ovis aries*), and the aging evidence suggests both immature and very old animals were exploited. Within the domesticated assemblage there is evidence of butchery in the form of knife cut marks, other modification is confined to burning and gnawing. The wild remains include species that may have been hunted for food but also ones such as lion (*Panthera leo*) that are less obviously related to subsistence. The potential wild subsistence remains include bushbuck (*Tragelaphus scriptus*), reedbuck (*Tragelaphus spekeii*), great forest hog (*Hylochoerus meinertzhageni*), common duiker (*Silvicapra grimmia*), kob (*Kobus kobus*) and elephant (*Loxodonta Africana*), some of which such as bushbuck and elephant show evidence of butchery in the form of chop marks and knife cut marks (Fig. 8.36).

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid Size Class 5	Pelvis			Fragment		26	2
	Humerus	Right		Fractured shaft	Punctured		
	1st Phalanges			Fragment			
	Thoracic Vertebra			Fragment			
	Scapula			Fragment	Knife cut		
	Radius	Left		Fractured shaft			
	Metatarsal			Fractured shaft			
	Radius/Ulna		Fused	Fractured shaft			
	Rib			Proximal shaft			
	Rib			Proximal shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Axis			< Half			
	Lumber Vertebra		Unfused	< Half			
	Lumber Vertebra		Unfused	< Half			
	Lumber Vertebra		Unfused	Almost whole			
	Lumber Vertebra		Unfused	Vertical process			
	Lumber Vertebra			Fragment			
	Thoracic Vertebra			Fragment			
	Thoracic Vertebra			Fragment			
	Second Upper Molar			< Half	Burnt		
	Scapula	Left		Fragment			
	Pelvis			Fragment	Burnt		
	Rib			Proximal Shaft			
	Orbital	Left		Fragment			
Bovid Size Class 4	Tibia	Left	Unfused Distal	Distal		4	1

	Sesamoid			Whole			
	Thoracic Vertebra		Fused	Almost whole			
	Pelvis			Fragment			
Bovid Size Class 3	Ulna	Right		Fragment		64	2
	Ulna	Left	Unfused	Almost Whole			
	Scapula			Fragment			
	Humerus	Left	Fused	Distal			
	Thoracic Vertebra			Fragment	Knife cut		
	Pelvis			Fragment	Knife cut		
	Scapula	Left		Fragment			
	Scapula	Left	Fused	Proximal			
	Scapula			Fragment			
	Scapula			Fragment			
	Nevicular cuboid		Immature	Whole	Burnt		
	Metatarsal		Unfused distal	Distal shaft			
	Metatarsal		Fused distal	Distal shaft	Burnt		
	Rib			Proximal shaft	Knife cut		
	Rib			Proximal shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Thoracic vertebra		Unfused	Almost whole			
	Lumber vertebra		Fused	Almost whole			
	Thoracic vertebra		Unfused	< Half			
	Lumber Vertebra			Fragment			
	Axis			Fragment			
	Vertebra		Unfused caudial	Fragment			
	Thoracic vertebra			< Half			

	Thoracic vertebra		Unfused	AW			
	Thoracic vertebra		Unfused	>H			
	Pelvis		Juvenile	Fragment			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal shaft			
	Cranial vertebra		Fused	> Half			
	Cranial vertebra			Fragment			
	Lumber vertebra		Unfused	Horizontal process	Knife cut		
	Tibia	Left	Fused	Proximal shaft	Chopped		
	Pelvis			Fragment	Etched by stomach acids		
	Radius	Right		Fractured shaft			
	Pelvis			Fragment			
	Axis			Fragment			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Hyoid			Almost whole			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	3rd Phalanges		Juvenile	Whole			
	Rib			Proximal shaft			
	Atlas			< Half			
Bovid Size Class 2	Axis			< Half		1	1
Bovid Size Class 1	Scapula	Left	Fused	Proximal shaft		6	2
	Thoracic vertebra		Unfused	Vertical process			
	Metacarpal			Fractured shaft			
	Rib			Fractured shaft			
	Humerus			Fractured shaft			
	Scapula	Left		Fragment			
Bos taurus	Radius	Left	Fused	Proximal		12	2
	Metacarpal		Fused	Proximal			
	1st Phalanges		Fused	Whole	Knife cut		
	1st Phalanges		Fused	Whole	Knife cut		
	2nd Phalanges		Fused	Almost whole	Burnt		
	2nd Phalanges		Fused	Distal	Gnawed		
	3rd Phalanges		Fused	< Half			
	Incisor			Almost whole			
	Upper deciduous 3			Whole			
	Deciduous 3		Immature	Whole			
	Humerus	Right	Fused	Proximal			

	Mandible (G1)		Age class IX	Fragment			
	Lower molar 3 (G2)		Age class IX	Whole			
Ovis aries	Metacarpal		Unfused Distal	Whole		1	1
Caprine	Cranium		< Half			1	1
Ovis/Capra	Radius	Right	Fused	Proximal		7	3
	2nd Phalanges		Fused	Whole			
	Radius/Ulna	Left		<Half	Burnt		
	Maxilla (G1)	Right		<Half			
	Upper Molar 3 (G1)	Right	Mature	Whole			
	Maxilla (G2)	Right		Fragment			
	Upper Molar 1 (G2)	Right		Whole			
	Calcaneum	Left	Fused	Whole			
	Maxilla (G2)	Right	Mature	<Half			
	Upper Molar 3 (G2)	Right	Mature	Whole			
	Upper Molar 2 (G2)	Right	Mature	Whole			
	Upper molar1 (G2)	Right	Mature	Whole			
	Upper pre-molar 4 (G2)	Right	Mature	Whole			
	Upper pre-molar 3 (G2)	Right	Mature	Whole			
	Upper Pre-molar 2 (G2)	Right	Mature	Whole			
Panthera leo	Humerus		Unfused	Distal		1	1
Tragalaphus scriptus	Femur	Right	Fused	Distal	Knife cut	6	1
	Maxilla (G)		Mature	Whole			
	Upper molar 2 (G)		Mature	Whole			
	Upper molar 1 (G)		Mature	Whole			
	Humerus	Right	Fused	Distal			
	Astragalus	Left		Whole			
	Humerus	Right	Fused	Proximal			
	2nd Phalanges		Unfused	Proximal			
Tragalaphus spekei	2nd Phalanges		Fused	Whole		2	1
	Upper molar 2	Right		Whole			
Kobus vardoni	Astragalus (G)	Left		Whole		1	1
	Nevicular cuboid (G)	Left		Whole			
Aepycerous melampus	2nd Phalanges		Fused	Whole	Gnawed	1	1

Bird	Long bone			Fractured shaft		17	3
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Scapula			Fragment			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Humerus		Unfused	Whole			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
Rodent	Tibia/Fibia	Left	Fused	Almost whole		19	3
	Humerus	Left	Fused	Whole			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Femur	Left	Unfused	Distal			
	Maxilla			Almost whole			
	Mandible			Almost whole			
	Incisor			Whole			
	Long bone			Fractured shaft			
	Femur	Right	Fused	Whole			
	Humerus	Left	Fused	Almost whole			
	Tibia	Right	Fused	Whole			
	Humerus	Left	Fused	Distal shaft			
	Femur	Left	Fused	Almost whole			
	Femur	Right	Fused	Almost whole			
	Femur	Left	Fused	Almost whole			
	Humerus	Left	Fused	Almost whole			
	2nd Phalanges		Fused	Almost whole			
Reptile	Vertebra		Fused	Almost whole		1	1
Great Forest Hog	Maxilla (G)	Right	Mature	<Half		1	1
	Upper Molar 3 (G)	Right	Mature	Whole			
	Upper Molar 2 (G)	Right	Mature	Whole			
	Upper Molar 1 (G)	Right	Mature	Whole			
Panthera pardus	Pelvis	Left		Fragment		1	1

Silvicapra grimmia	1st Phalanges		Fused	Whole		1	1
Kobus kob	Pelvis			Fragment		2	1
	Metapodial		Fused	Distal			
Loxidonta africana	Metapodial		Juvenile	Whole	Knife cut, chopped	1	1

Fig. 8.35 Table showing the zooarchaeological remains from [B1] Musanze II

Fig. 8.36 Photograph showing a butchered elephant metatarsal from Musanze II

In the following context [B2] there were no zooarchaeological remains. However, in deposit [B3] the zooarchaeological assemblage included frequent *Bovidae* specimens. Whilst Bovid Size Class 3 was most common, Size Classes 5, 4 and 1 are also present in the assemblage and there is evidence of butchery, including chop marks and knife cut marks (Fig. 8.37). Again the most significant remains in terms of the specific research questions are the occurrence of domesticated stock, cattle (*Bos taurus*) and sheep/goat (*Ovis/Capra*) remains, alongside wild, potentially hunted or gathered ones, such as bushbuck (*Tragelaphus scriptus*), with knife cut marks, and smaller species such as duiker (*Cephalophus*) and common duiker (*Silvicapra grimmia*). These remains suggest that from the earliest occupation of the caves wild and domestic species were accessible and were utilised by the cave dwellers.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Cranial vertebra			Fragment		7	1
	Cranial vertebra			Fragment			
	Thoracic vertebra			Fragment			
	Scapula	Left	Fused	Proximal	Chopped		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
Bovid size class 4	Tibia	Left	Fused	Proximal shaft	Knife cut	1	1
Bovid size class 3	Thoracic vertebra		Unfused	Fragment		23	1
	Calcanium			Fragment			
	Metapodial		Fused	Distal			
	Lumber vertebra		Unfused	Almost whole			
	Pelvis			Fragment	Knife cut		
	Pelvis			Fragment	Knife cut		
	Ulna			Fragment			
	Scapula	Left	Fused	Proximal shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Mandible	Right		Fragment			
Bovid size class 1	Rib			Fractured shaft		1	1

Bos taurus	Sacrum			Fragment		2	1
	3rd Phalanges			Whole			
Ovis/Capra	2nd Phalanges		Unfused	Whole		2	1
	Humerus	Left	Fused	Proximal			
Tragalaphus scriptus	Calcaneum	Right	Fused	<Half		3	1
	Tibia	Right	Fused	Proximal shaft	Knife cut		
	Upper Molar 2	Right		Whole			
Cephalopus	Astragalus	Left		Whole		1	1
Silvicapra grimmia	Incisor			Whole		1	1
Rodent	Femur	Left	Fused	Almost whole		1	1
Bird	Long bone			<Half		1	1

Fig. 8.37 Table showing the zooarchaeological remains from [B3] Musanze II

Summary

The zooarchaeological assemblage from Musanze II included a wide range of species, both domestic and wild, from very large specimens to small. Unfortunately due to the very small size of the assemblage from unit A and its incomplete nature because of its discontinuation due to rock falls this assemblage is of little interpretative value. However, the assemblage from unit B demonstrates that in the two phases represented a range of species both domestic and wild was exploited.

8.11 Palaeobotanical Analysis

Although no palaeobotanical samples were taken from unit A, three samples were taken from unit B: one from the top of the first phase [B1], one from its base [B1] and one from the final sealed and dated context [B3]. These samples revealed some unusual remains. Whilst finger millet remains (*Eleusine coracana*) are not unexpected in a Late Iron Age context, the manner in which they have been preserved is. Although one charred seed was identified all the other remains from all three samples preserved non-carbonised seeds, some with traces of crystallised calcium carbonate around them which may explain their preservation in an un-charred state. Based on observations by Dr. Dorian Fuller, they are not believed to be recent (Pers comm. 2008). Instead they are thought to be the product of crystallisation by calcium carbonate dissolved in the deposit that leaches through the walls of all of the caves in the region. In the earliest context [B3] there were also found charred remains of wild plants including wild flowers (*Boraginaceae*), wild fruits including hackberry (*Celtis*) and parenchyma (general plant tissue). The wild fruit remains alongside the domestic plant remains suggest that the cave occupants utilised a range of plant food both cultivated and foraged.

8.12 Other Finds

There was one small-find recovered from test excavation unit A, a fired bullet, found in the most recent deposit [A1] (Fig. 8.38), suggesting that this stratigraphic phase includes recently deposited material from the mid-late 20th century conflicts. Whilst no conflict material was recovered from test excavation unit B, a group of small finds from the most recent context [B1] were identified. These finds include an oblong bead (Fig. 8.39), a polished bone bead (Fig. 8.40), an ivory bead (Fig. 8.41), a bone whistle (Fig. 8.42) and a broken iron 'billhook' type blade. There was only two finds from the earliest dated context in test excavation unit B [3], a white shell bead (Fig. 8.43) and an iron bracelet (Fig. 8.44).

Fig. 8.38 Photograph showing a used bullet from [A1] Musanze II

Fig. 8.39 Photograph showing an oblong bead from [B1] Musanze II

Fig. 8.40 Photograph showing a polished bone bead in profile from [B1] Musanze II

Fig. 8.41 Photograph showing an ivory bead from [B1] Musanze II

Fig. 8.42 Photograph showing a bone whistle from [B1] Musanze II

Fig. 8.43 Photograph showing a shell bead from [B3] Musanze II

Fig. 8.44 Photograph showing an iron bracelet from [B3] Musanze II

8.13 Musanze III

The Musanze III entrance is located at southing 01.30.435, easting 029.36.89 and elevation 1821m, and sits above a low dry-stone wall beneath. Two 1x2m excavation units were located along the eastern edge of the cave in a large flat area to the east of a steeply sloping rock fall (Fig 8.45). Test excavation unit A was excavated to a depth of 1.3m and contained a series of thin lenses (Fig 8.46). The first context [A1] consisted of a sterile medium brown, clayey-silt, that was soft and dusty with a faint light brown band running through the middle. Following this was a series of thin clayey silts [A2] separated in part by thin lenses of white calciferous material. Beneath these layers were two larger similar contexts of light to medium grey clayey silt, [A3] and [A4] and these two contexts were separated by a thin band of calciferous material and sat above bedrock.

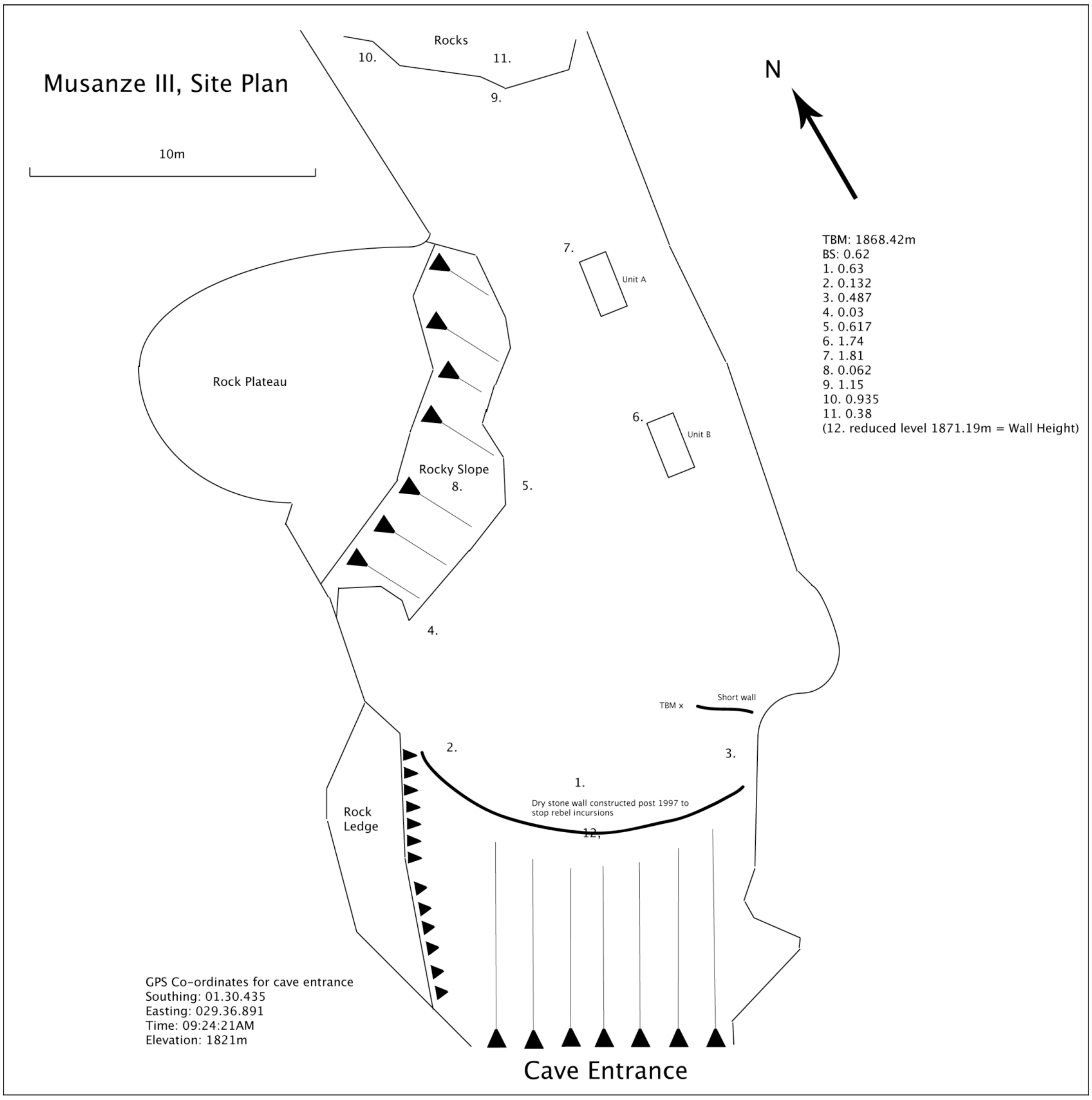

Fig. 8.45 Illustration showing site plan of Musanze III

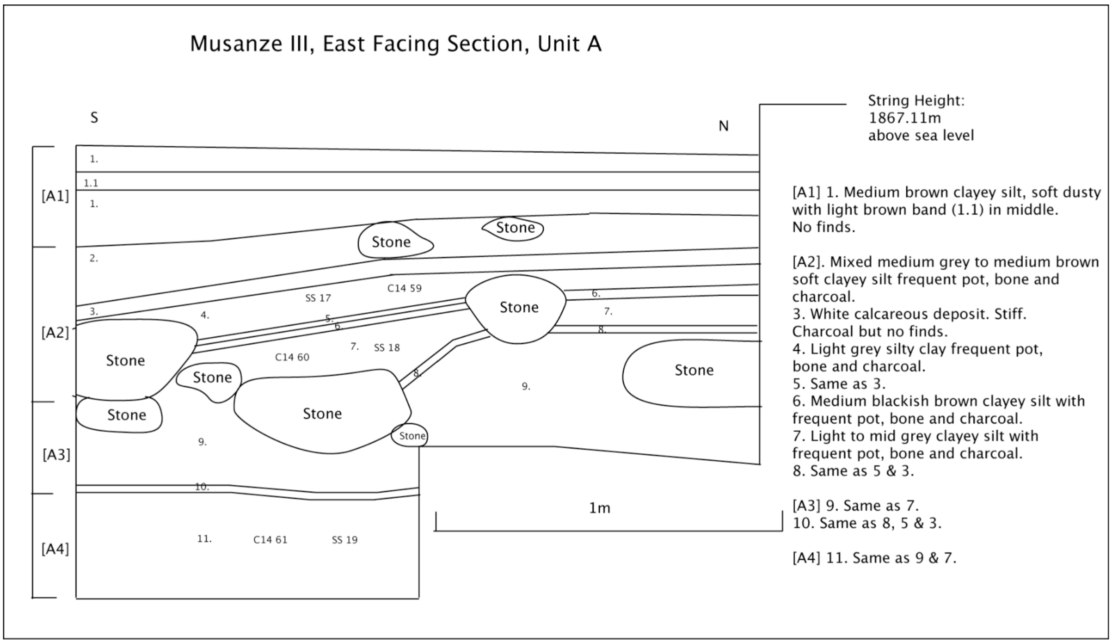

Fig. 8.46 Illustration showing east-facing section of unit A, Musanze III

Test excavation unit B was excavated to a depth of 1.2m and encountered a similar set of deposits to those found in unit A (Fig. 8.47). Again the first context [B1] consisted of a medium brown, clayey-silt, that was soft and dusty with a faint light brown band running through the middle. Following this context were a series of clayey silt deposits with frequent Late Iron Age pottery, bone and charcoal [B2 – B4]. The clayey silts sat above natural bedrock with a thin calcareous deposit on its surface.

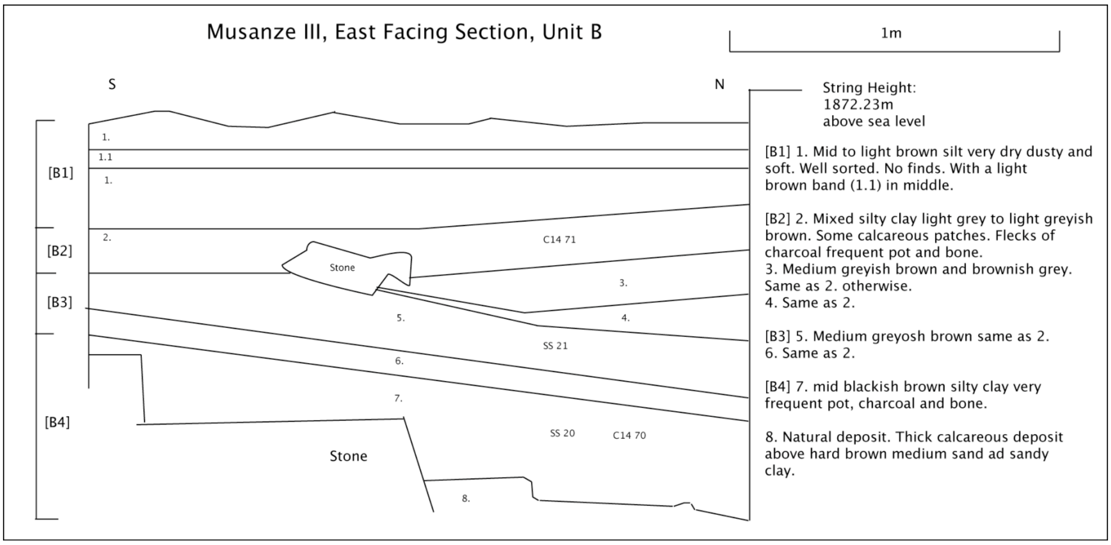

Fig. 8.47 Illustration showing east-facing section of unit B, Musanze III

Radiocarbon Sample	Context	Date BP	Calibrated date (2 sigma)
OxA-19522	Earliest context unit B	996 ± 25 BP	1028 – 1152 AD

Fig. 8.48 Table showing the radiocarbon date from the earliest archaeological context [B4] unit B at Musanze III

A single date was sought from the stratigraphically earliest deposit from unit B [B4] and this sample returned a date for the early 2nd millennium AD (Fig. 8.46). This date is very similar to the one produced for the earliest context from Musanze II and continues to place the earliest occupation of the caves at the beginning of the Late Iron Age.

8.14 Ceramic Analysis

Technological Profile

The total ceramic assemblage from the test excavations at Musanze III weighed 44.19kg. Within the total assemblage ten fabric groups were identified: fabric M1 (68%) dominated the assemblage and the remainder was made up of fabrics M2 (9%), M10 (4%), M11 (3.5%), M7 (3%), M9 (3%), M8 (2%), M12 (1%), M3 (0.5%), M6 (0.5%) and miscellaneous (5.5%). A similar frequency was identified in both of the test excavation units, which were again dominated by fabric M1 and to a lesser degree M2. The stratigraphically earliest deposit in test excavation unit A [A4] contained a ceramic assemblage weighing 3.3kg with fabrics M1 (29%), M2 (24.5%), M11 (16.5%), M7 (9.5%), M10 (2.5%), M9 (1%) and miscellaneous (17%). The size of the assemblage increased considerably in the next context [A3] to 6.06kg and included fabrics M1 (39.5%), M2 (20%), M11 (14%), M10 (9%), M7 (4.5%), M9 (3.5%), M12 (1.5%), M6 (0.5%) and miscellaneous (7.5%). The assemblage is broadly similar in the next latest deposit [A2], weighing 9.73kg and including M1 (79.5%), M10 (8%), M2 (3.5%), M7 (2.5%), M9 (2%), M3 (0.5%), M8 (0.5%) and miscellaneous (2.5%). Finally, the most recent deposit [A1] in test excavation in unit A contained very few finds and may be related to the abandonment of these caves as regular living areas in more recent times. The assemblage from this deposit weighed only 0.23kg and contained fabrics M1 (49%), M2 (10.5%) and miscellaneous (40.5%).

The earliest deposit in test excavation unit B [B4], radiocarbon dated to the beginning of the 1st millennium AD, contained a sizable ceramic assemblage weighing 11.63kg. Within this assemblage six fabrics were identified: M1 (91.5%), M11 (3%), M2 (1.5%), M6 (1.5%), M12 (1%), M7 (0.5%) and miscellaneous (1%). This proportion remained stable throughout the later contexts [B3], [B4] and [B5]. The evidence from Musanze III contradicts that from Musanze II, which suggested an increase in fabric choice over time. Conversely, at Musanze III the evidence suggests a wide range of fabrics were available from the earliest occupation of these caves and throughout their use.

Morphological Profile

Sixty-three reconstructable vessels were recovered from the excavations at Musanze III, thirty-one from test excavation unit A and thirty-two from test excavation unit B. All of the vessels fit the Late Iron Age roulette-decorated ceramic tradition and as at Musanze II there are decorated handles (Fig. 8.49, d) although the very fine roulette decoration associated with fabric M5 is absent. The total reconstructable assemblage from Musanze III consists of six vessel forms; straight necked jars (36.5%), everted neck globular jars (30%), hemispherical bowls (11%) (Fig 8.48, a, b and c respectively), beakers (11%) and closed bowls (9.5%). This distribution shows a preference for larger storage vessels (66.5%), as at Musanze II.

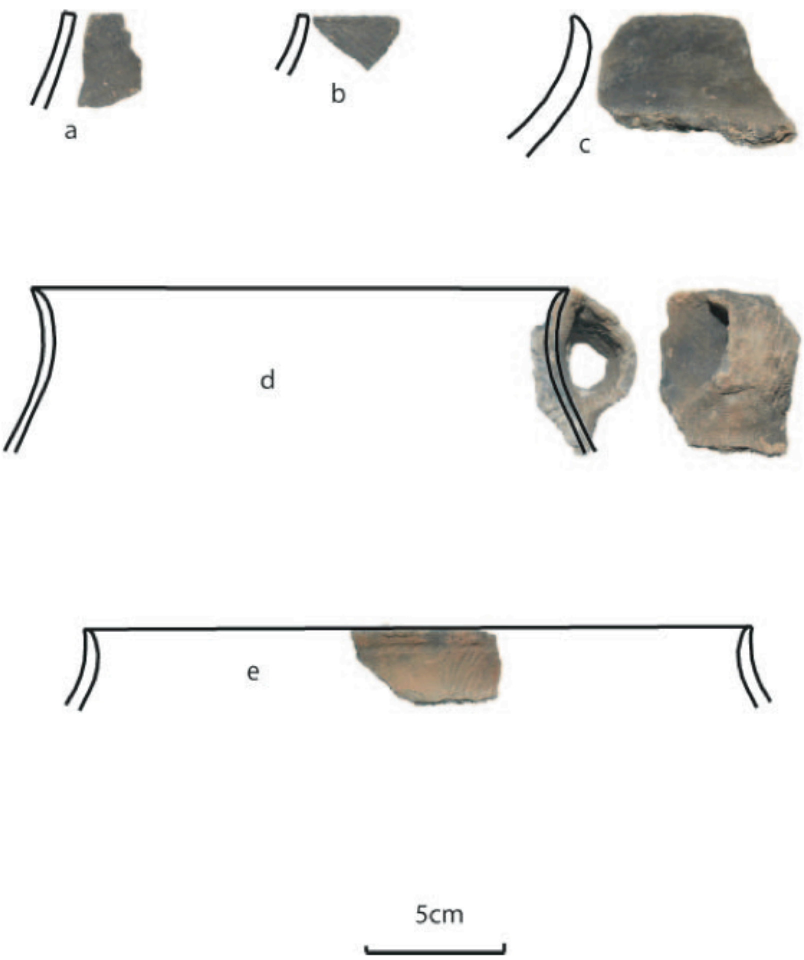

Fig. 8.49 Illustrated photograph showing range of rim types and vessels from Musanze III, including a squared rim (a, b), everted rounded rims (c-e), an everted necked jar with handle (d) and a hemispherical bowl with everted rim (e)

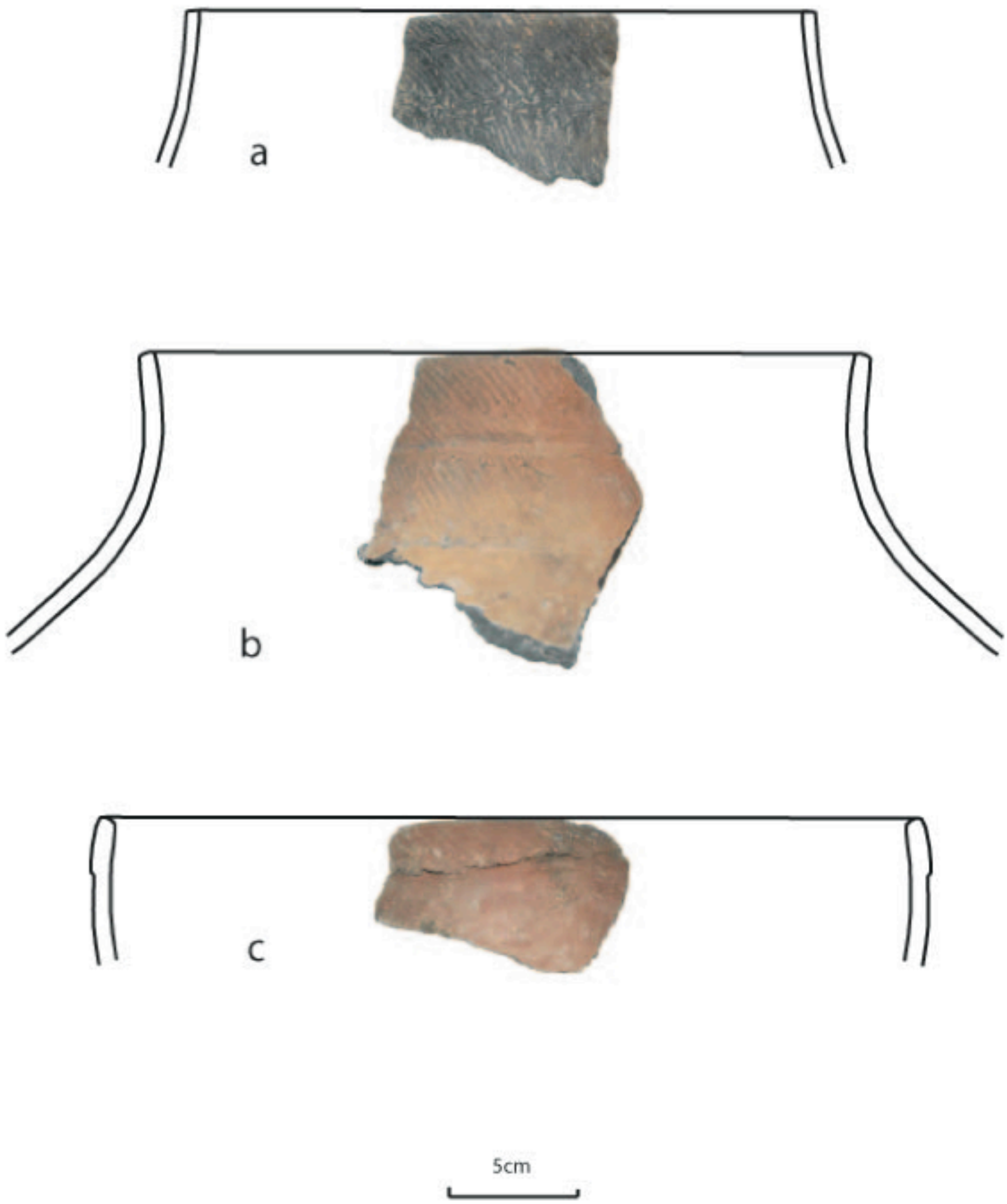

Fig. 8.50 Illustrated photograph showing reconstructable vessels from Musanze III, including a straight necked jar (a), an everted necked jar (b) and a hemispherical bowl (c)

	M1	M2	M7	M8	M9	M10
Everted neck globular jar	72%	28%	0%%	0%	0%	0%
Straight necked jar	78%	4.34%	4.34%	4.3%	4.34%	4.34%
Hemispherical bowl	83%	0%	0%	0%	0%	0%
Open Bowl	100%	0%	0%	0%	0%	0%
Closed bowl	40%	40%	0%	0%	0%	20%
Beaker	86%	0%	14%	0%	0%	0%

Fig. 8.51 Table showing the distribution of forms relative to fabrics from Musanze III

The distribution of fabric to form (Fig. 8.51) reflects the pre-dominance of fabric M1 within all vessel forms. However, analysis of the rim types (Fig. 8.52) show parallels with those from Musanze II but with a preference for simple squared rims (52.5%) followed by simple rounded rims (30%), thickened rims (9.5%) and tapered rims

(8%). Although there appears to be no particular preference for form as the various types occur across a range of forms.

	Squared rim	Rounded rim	Tapered rim	Thickened rim
Everted neck globular jar	12	7	0	1
Straight necked jar	16	5	1	1
Hemispherical bowl	2	1	3	1
Open Bowl	0	1	0	2
Closed bowl	2	0	0	1
Beaker	1	5	1	0

Fig. 8.52 Table showing frequency of rim types relative to form from Musanze III

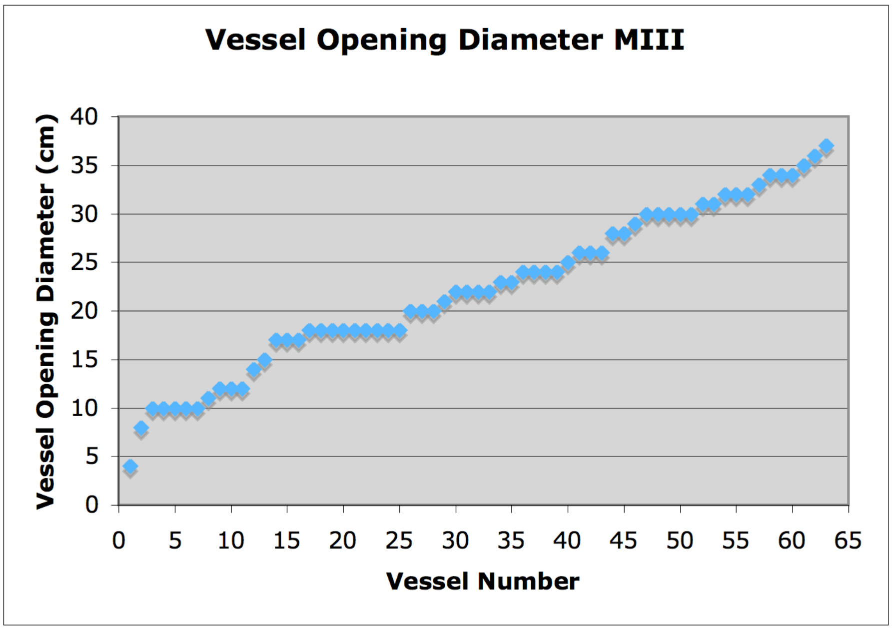

Fig. 8.53 Graph showing vessel opening diameters for the reconstructable vessels from Musanze III

The reconstructable assemblage from Musanze III produced sixty-three vessels that were sufficiently complete to allow a rim diameter to be estimated (Fig. 8.53). The full range spans from 8 to 37cm and although the greatest frequency is 18cm in diameter, the distribution is roughly even and is not form specific. The range is not dissimilar to the one encountered in Musanze II.

The decorative range from Musanze III, as at Musanze II, was completely confined to Late Iron Age rouletting. Within the reconstructable assemblage from Musanze III there was only one vessel with knotted-strip roulette decoration and this was in the most recent context from test excavation unit A. The rest of the total and reconstructable assemblage was decorated with twisted-string roulette decoration. There were fifty-three reconstructable vessels and four hundred and forty-five sherds decorated with twisted-string roulette decoration from the total assemblage. As in the assemblage from Musanze II, the direction of rouletting was consistent on each vessel either being diagonally left or right or horizontal but never a combination except on handles. With the exception of the open bowls, which are only represented by two examples, all vessel-form types display both directions of rouletting in broadly even proportions (Fig. 8.54).

	Left diagonal	Right diagonal
Everted neck globular jar	8	9
Straight necked jar	9	7
Hemispherical bowl	3	4
Open Bowl	0	2
Closed bowl	2	2
Beaker	5	2

Fig. 8.54 Table showing the frequency of rouletting direction relative to vessel form at Musanze III

The application of decoration relative to vessel zone demonstrates a preference for decoration around the lip and neck of jars and to a lesser degree bowls (Figs. 8.55 and 8.56). There is also a preference for interior rouletting in jars but this is rarely seen in the bowls.

	Lip	Neck	Body	Internal
Everted neck globular jar	18	19	8	11
Straight necked jar	21	20	5	7
Hemispherical bowl	5	5	1	1
Open bowl	0	1	0	1
Closed bowl	4	5	0	1
Beaker	5	6	3	2

Fig. 8.55 Table showing the frequency of incidences of decoration relative to location at Musanze III

	Lip	Neck	Body	Internal
Everted neck globular jar	32%	34%	14.5%	19.5%
Straight necked jar	39.5%	38%	9.5%	13%
Hemispherical bowl	41.5%	41.5%	8.5%	8.5%
Open bowl	0%	50%	0%	50%
Closed bowl	40%	50%	0%	10%
Beaker	31.25%	37.5%	18.5%	12.5%

Fig. 8.56 Table showing the percentage frequency of incidences of decoration relative to location at Musanze III

There was only one base identified in the total assemblage and this came from the dated context in test excavation unit B [B4]. This base had a flat bottom and a raised area on the inner surface (Fig. 8.57). There were also only two handles identified in the total assemblage and both were made of double clay bands and were decorated with twisted-string roulette decoration. There was no surface treatment observed on any of the ceramic samples from the total assemblage.

Fig. 8.57 Photograph showing base plan and profile from Musanze III

8.15 Zooarchaeological Analysis

In the first and stratigraphically most recent of the four deposits in unit A [A1] the zooarchaeological assemblage was dominated by *bovidae* (Fig. 8.57). Eleven Bovid Size Class 5 and four Bovid Size Class 3 specimens were identified, both with examples of knife cut marks and one with gnawing. Of the specimens identified to species there were two domestic specimens; a cattle (*Bos taurus*) first phalanges with knife cut marks, and a sheep/goat (*Ovis/Capra*) lower fourth premolar. There were also two duiker (*Cephalophus*) specimens and two other *rodentia* specimens. In this deposit there was also a broken femur from an immature *Homo sapiens.* This human specimen is likely to have been from conflict in the mid to late 20th century AD. There were twenty-five unidentified specimens from this context.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Rib			Fractured shaft	Knife cut	11	2
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Scapula	Right	Fused	<Half	Gnawed		

	Scapula	Right		Fragment			
	Scapula	Left	Fused	<Half			
	Cranial Vertebra			<Half			
	Cranial Vertebra			Almost whole			
	Thoracic Vertebra			<Half			
	Lumber Vertebra			Vertical process			
	Mandible			Fragment	Knife cut		
Bovid size class 3	Rib		Immature	Fractured shaft		4	1
	Patella	Left		Almost whole			
	Axis			<Half	Knife cut		
	Cranial Vertebra			>Half			
Bos taurus	1st Phalanges		Fused	Whole	Knife cut	1	1
Ovis/Capra	Lower Premolar 4	Left		Whole		1	1
Homo sapiens	Femur (G1)	Left	Immature	Fractured shaft		1	1
	Femur (G1)	Left	Immature	Proximal shaft			
Cephalophus	2nd Phalanges		Fused	Whole		2	1
	Astragalus	Left		Whole			
Rodent	Rib		Mature	Proximal shaft		2	1
	Long bone			Whole			

Fig. 8.58 Table showing the identified zooarchaeological assemblage from [A1] Musanze III

The next context [A2] contained the largest zooarchaeological assemblage from the deposits in unit A (Fig. 8.59). This deposit was dominated by *bovidae*. There were fifteen Bovid Size Class 5 specimens, two Bovid Size Class 4 specimens, thirty-seven Bovid Size Class 3 and eight Bovid Size Class 1 specimens. Of these specimens identified to family, five had evidence of knife cut marks, one had chop marks and one showed gnawing. Six cattle (*Bos taurus*) specimens were identified one with knife cut marks and one with chop marks. Eight sheep/goat (*Ovis/Capra*) specimens were identified that represented at least two individuals and two of the specimens had knife cut marks. Of these two domestic groupings there were examples of specimens from immature and mature individuals, suggesting that no particular slaughter pattern was being employed. Of the other large *bovidae* remains there was one example of sitatunga (*Tragelaphus spekei*) and one waterbuck

(*Kobus ellipsiprymnus*) showing knife cut marks, indicating that wild animals were being butchered. Of the smaller wild species represented there were two white-bellied duiker (*Cephalophus leucogaster*) and one specimen that could only be attributed to duiker (*Cephalophus*), a hyrax (*Procaviidae*) and two common duiker (*Silvicapra grimmia*) specimens. Of the remaining assemblage there were ten bird bones, six *rodentia* and ninety-three unidentified specimens.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Metapodial			Fractured shaft	Knife cut	15	2
	Metapodial			Fractured shaft			
	Calcanium	Right	Unfused epiphysis	Epiphysis			
	Lumber vertebra			Fragment			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib		Immature	Proximal shaft	Knife cut		
	Pelvis			Fragment			
	Radius	Right		Fractured shaft			
	Radius	Right		Fractured shaft			
	Thoracic vertebra			Vertical process			
	Vertebra		Fused	<Half			
	Hyoid			Fractured shaft	Knife cut		
Bovid size class 4	Atlas		Fused	Almost whole		2	1
	Cranial vertebra		Fused	>Half			
Bovid size class 3	Metapodial			Fractured shaft		39	2
	Humerus	Right	Fused distal	Distal			
	Humerus	Left	Fused distal	Distal			
	Rib			Proximal shaft			
	Rib			Proximal shaft			
	Rib			Proximal shaft			
	Rib			Proximal shaft			
	Rib			Fractured shaft			

	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Scapula	Right		Proximal	Gnawed		
	Scapula	Right		Proximal			
	Tibia	Left	Fused proximal	Proximal shaft			
	Radius	Left		Fractured shaft	Knife cut		
	Thoracic vertebra			Vertical process			
	Lumber vertebra			Horizontal process			
	Thoracic vertebra			Vertical process			
	Cranial vertebra			Almost whole			
	Thoracic vertebra		Fused	<Half	Chopped		
	Vertebra			<Half	Knife cut		
	Thoracic vertebra			Vertical process			
	Mandible	Left		Fragment			
	Mandible	Left		Fragment			
	Mandible	Right		Fragment			
	Maxilla (G1)	Left	Immature	<Half			
	Deciduous 1 (G1)	Left	Immature	Whole			
	Deciduous 2 (G1)	Left	Immature	Whole			
Bovid size class 1	Rib			Fractured shaft		8	1
	Rib			Proximal shaft			
	Rib			Proximal shaft			
	Rib			Proximal shaft			
	Scapula	Right		Fractured			

				shaft			
	Cranial vertebra		Fused	Almost whole			
	Cranial vertebra		Fused	Almost whole			
	Cranial vertebra		Fused	Almost whole			
Bos Taurus	3rd Phalanges		Fused	Almost whole		6	1
	1st Phalanges		Unfused proximal	Whole			
	1st Phalanges		Unfused Proximal	Whole			
	Calcaneum	Left	Fused	Whole			
	Humerus	Left	Fused distal	Distal shaft	Chopped		
	Radius	Left	Proximal fused	Proximal shaft	Knife cut		
Ovis/Capra	Calcaneum	Left		Whole		8	2
	Humerus	Right	Fused distal	Distal	Knife cut		
	Humerus	Right	Fused distal	Distal			
	Femur	Left	Fused proximal	Proximal shaft	Knife cut		
	Tibia	Left	Fused distal	Distal shaft			
	Radius	Right	Unfused distal epiphysis	Distal epiphysis			
	Maxilla (G2)	Left		<Half			
	Molar 3 (G2)	Left		Whole			
	Molar 2 (G2)	Left		Whole			
	Maxilla (G3)	Left		<Half			
	Molar 1 (G3)	Left		Whole			
	Pre molar 4 (G3)	Left		Whole			
Cephalophus leucogaster	1st Phalanges		Fused	Whole		2	1
	Scapula	Left	Fused	Proximal			
Cephalophus	Metacarpal		Fused	Distal shaft		1	1
Silvicapra grimmia	Calcanium		Fused	Whole		2	1
	Pelvis	Left		Fragment			
Kobus ellipsiprymnus	Astragalus			Whole	Knife Cut	1	1
Tragalaphus scriptus	Pelvis	Left		Proximal		1	1
Procaviidae	Mandible (G5)	Right		Half		1	1

	Pre-molar 2 (G5)	Right		Whole			
	Pre-molar 3 (G5)	Right		Whole			
	Pre-molar 4 (G5)	Right		Whole			
	Molar 1 (G5	Right		Whole			
	Molar 2 (G5)	Right		Whole			
	Molar 3 (G5)	Right		Whole			
Bird	Tibia	Left		Whole		10	1
	Scapula			<Half			
	Ulna	Right		Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Axis			Whole			
	Vertebra			<Half			
	Cranium			Fragment			
	Cranium			Fragment			
Rodent	Rib			Almost whole		6	2
	Mandible (G4)			Fragment			
	Incisor (G4)			Whole			
	Incisor			Fractured shaft			
	Incisor			Fractured shaft			
	Incisor			Fractured shaft			
	Incisor			Fractured shaft			

Fig. 8.59 Table showing the identified zooarchaeological assemblage from [A2] Musanze III

The following context [A3] contained twenty-three specimens of Bovid Size Class 5 that represented at least three individuals (Fig. 8.60). This sample contained two specimens with gnawing, four burnt specimens, and two specimens with knife cut marks and two with puncture marks. Significantly two scapula specimens from this group showed evidence of breaking to access the marrow cavity (Figs. 8.61 and 8.62). This suggests that the occupants of the cave were accessing all available sources of meat and nutrition and therefore may not have had a plentiful access to meat at all times, thus needing to maximise the nutritional return from each source. It is also possible that these portions are socially or symbolically important, however, these areas have not been accessed on all scapula examples. Thirty-seven specimens from Bovid Size Class 3 were identified, one with burning, one with gnawing and three with knife cut marks. Six Bovid Size Class 1 specimens were identified, one with burning and gnawing. Domestic species cattle (*Bos taurus*) and sheep/goat (*Ovis/Capra*) were also identified. Four cattle specimens were identified. The most interesting of these specimens was the mandible that had a series of knife cut marks (Fig. 8.63). There were six sheep/goat specimens representing at least two individuals, one burnt specimen and one with knife cut marks. With the exception of seven bird specimens the remaining identified specimens from this deposit come from large mammals including three bushbuck (*Tragelaphus scriptus*) specimens, one burnt, three sitatunga (*Tragelaphus spekeii*) specimens, one with knife cut butchery marks, one kob (*Kobus kob*) specimen, and one elephant (*Loxodonta africana*) specimen. Whilst the bushbuck, reedbuck and kob specimens are not unexpected, the elephant specimen is interesting. Another elephant specimen was recovered from a similar deposit in Musanze III unit B and that specimen like this one was immature.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Cranial vertebra			Fragment		23	3
	Scapula	Left		Proximal shaft	Marrow cut		
	Lumber vertebra			Fragment			
	Humerus	Left	Unfused distal epiphysis	Distal epiphysis			
	Tibia	Left	Unfused distal epiphysis	Distal epiphysis	Gnawed		
	Tibia	Right	Unfused distal	Distal shaft	Burnt		
	Tibia	Right	Uunfused proximal	Proximal shaft			
	Humerus	Left	Fused proximal	Proximal shaft			
	Scapula			Fragment			
	Rib			Fractured shaft	Knife cut		
	Rib			Fractured shaft	Punched, Burnt		
	Cranial vertebra			Fragment			
	Scapula	Left		Proximal shaft	Marrow		
	Lumber vertebra			Fragment			
	Humerus	Left	Unfused distal epiphysis	Distal epiphysis			
	Tibia	Left	Unfused distal epiphysis	Distal epiphysis	Gnawed		
	Tibia	Right	Unfused distal	Distal shaft	Burnt		
	Tibia	Right	Unfused proximal	Proximal shaft			
	Humerus	Left	Fused proximal	Proximal shaft			

	Scapula			Fragment			
	Rib			Proximal shaft	Knife cut		
	Rib			Fractured shaft	Punched, Burnt		
	Incisor			Almost whole			
Bovid size class 3	Metapodial			Fractured shaft		37	1
	Metapodial			Fractured shaft			
	Metapodial			Fractured shaft			
	Metapodial			Fractured shaft			
	Metacarpal		Unfused proximal	Proximal shaft			
	Scapula			Fractured shaft			
	Tibia	Left		Fractured shaft			
	Scapula	Left		Fragment	Gnawed		
	Sacrum			<Half			
	Thoracic vertebra		Fused	Almost whole			
	Thoracic vertebra		Fused	Almost whole			
	Thoracic vertebra		Fused	Almost whole			
	Thoracic vertebra		Fused	Almost whole			
	Thoracic vertebra		Fused	Almost whole			
	Lumber vertebra			<Half			
	Lumber vertebra			<Half			
	Lumber vertebra			<Half			
	Metacarpal		Fused proximal	Proximal			
	Metapodial		Unfused distal epiphysis	Distal epiphysis			
	Femur	Left	Unfused	Fractured shaft	Burnt		
	Humerus	Left		Fractured shaft	Knife cut		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			

	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal shaft			
	Rib			Proximal shaft			
	Rib			Proximal shaft			
	Humerus	Right	Unfused	Proximal	Knife cut		
	Mandible			Fragment	Knife cut		
Bovid size class 1	Lumber Vertebra			<Half	Burnt, Gnawed	6	1
	Thoracic vertebra			Vertical process			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal shaft			
Bos taurus	Calcanium	Right	Fused proximal	Proximal		4	1
	Radius	Right	Fused proximal	Proximal			
	Upper deciduous 2	Left	Immature	Whole			
	Mandible	Right		Fragment	Knife cut		
Ovis/Capra	Calcanium	Left	Fused	Whole		6	2
	Calcanium	Left	Unfused	Whole			
	Radius	Left	Fused proximal	Proximal			
	Radius/Ulna	Left	Fused	<Half	Burnt		
	Tibia	Right	Fused proximal	Proximal			
	Femur	Left	Fused	Proximal shaft	Knife cut		
Tragalaphus scriptus	Tibia	Right	Fused	Proximal		3	1
	1st Phalanges		Fused	Whole	Burnt		
	Scapula	Right		Proximal			
Tragalaphus spekei	1st phalanges		Fused	Whole	Knife cut	3	1
	Metatarsal	Right	Fused	Distal			
	Radius	Right	Unfused	Distal epiphysis			
Kobus kob	Pelvis	Left		Fragment		1	1
Loxidonta africana	1st Phalanges		Unfused	Whole		1	1
Bird	Femur	Left	Fused	Distal shaft		7	2

	Tibia	Right	Fused	Proximal shaft			
	Femur	Left	Fused	Proximal shaft			
	Pelvis			Fragment			
	Pelvis			Fragment			
	Pelvis			Fragment			
	Long bone			Fractured shaft			

Fig. 8.60 Table showing the identified zooarchaeological assemblage from [A3] Musanze III

Fig. 8.61 Photograph showing marrow extraction marks on scapula from Musanze III

Fig. 8.62 Photograph showing marrow extraction marks on scapula from Musanze III

Fig. 8.63 Photograph showing knife-cut butchery marks on mandible from Musanze III

The final and stratigraphically earliest context at unit A [A4] contained four Bovid Class 5 specimens, one with puncture marks and burning, one Bovid Class 4 specimen, sixteen Bovid Class 3 specimens, one with burning, one Bovid Class 2 specimen and four Bovid Class 1 specimens (Fig. 8.64). The domestic assemblage consisted of four sheep/goat (*Ovis/Capra*) specimens from at least two individuals. The wild remains included six bushbuck (*Tragelaphus scriptus*) specimens from at least two individuals, two with burning, one common duiker (*Silvicapra grimmia*) and one white-bellied duiker (*Cephalopus leucogaster*) and one *Lagomorph* specimen. There were nineteen unidentified specimens from this deposit.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Pelvis			Fragment		4	1
	Rib			Fractured shaft			
	Humerus	Left		Fractured shaft	Punched, Burnt		
	Vertebra			Fragment			
Bovid size class 4	Orbital	Left		<Half		1	1
Bovid size class 3	Atlas			Whole		16	1
	Thoracic vertebra			Whole			
	Thoracic vertebra			Whole			
	Thoracic vertebra			Whole			
	Cranial vertebra			Fragment			
	Thoracic vertebra			Vertical process			

	Rib			Fractured shaft			
	Rib			Proximal shaft			
	Rib			Proximal shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Scapula	Left		Fragment			
	Tibia	Right	Unfused	Distal epiphysis	Burnt		
	Cranium			Fragment			
Bovid size class 2	Metapodia			Fractured shaft		1	1
Bovid size class 1	Thoracic vertebra			Whole		4	1
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Metacarpal			Fractured shaft			
Ovis/Capra	Tibia	Left	Unfused proximal and distal	Whole		4	2
	Femur	Right	Fused distal	Distal			
	Femur	Right	Fused distal	Distal			
	Cranium			<Half			
Loxidonta africana	Vertebra			Fragment		1	1
Tragalaphus scriptus	Astragalus			Whole		6	2
	Metatarsal	Right	Fused	Proximal shaft	Burnt		
	Tibia	Right	Just fused	Proximal	Burnt		
	Mandible	Left		<Half			
	Mandible	Left		<Half			
	Mandible	Right		<Half			
Silvicapra Grimmia	Femur	Left	Fused	Proximal		1	1

Cephalophus leucocaster	Cranium (G1)	Left		>Half		1	1
	Horn (G1)	Left					

Fig. 8.64 Table showing the identified zooarchaeological assemblage from [A4] Musanze III

The first context in unit B [B1] contained three Bovid Size Class 5 and twelve Bovid Class 3 specimens and two Bovid Size Class 1 specimens (Fig. 8.65). Within the domestic assemblage there was one cattle (*Bos taurus*) astragalus with chop marks and one incisor, and one sheep/goat (*Ovis/Capra*) calcaneum and one metatarsal. The remaining sample was made up of one bushbuck (*Tragelaphus scriptus*) specimen, one kob (*Kobus kob*) specimen and one common duiker (*Silvicapra grimmia*) specimen. There were five unidentified specimens in this context.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Mandible	Left		Fragment		3	1
	Rib			Fractured shaft			
	Rib			Fractured shaft			
Bovid size class 3	Rib			Fractured shaft		12	1
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Thoracic vertebra			<Half			
	Femur	Left	Proximal fused	Proximal			
	Thoracic vertebra		Fused	Fragment			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Cranium		Immature	Fragment			
Bovid size class 1	Thoracic vertebra		Unfused cranial, fused caudial	Almost whole		2	1
	Ribs			Fractured shaft			
Bos taurus	Astragalus	Left		>Half	Chopped	2	1
	Incisor			Almost whole			

Ovis/Capra	Calcaneum	Left	Fused	Almost whole		2	1
	Metatarsal		Fused proximal	Proximal shaft			
Tragalaphus scriptus	Tibia (G2)	Right	Unfused distal epiphysis	Distal epiphysis		1	1
	Tibia (G2)	Right	Unfused distal epiphysis	Distal			
Kobus kob	3rd Phalanges		Fused	Whole			
Silvicapra grimmia	Mandible (G1)	Left		<Half		1	1
	Molar 1 (G1)	Left		Whole			
	Molar 2 (G1)	Left		Whole			
	Molar 3 (G1)	Left		Whole			
	Premolar 4 (G1)	Left		Whole			

Fig. 8.65 Table showing the identified zooarchaeological assemblage from [B1] Musanze III

The following context in unit B [B3] contained five Bovid Size Class 5 specimens, one Bovid Size Class 4 specimen and seventeen Bovid Size Class 3 specimens, one with chop marks and one with burning and one Bovid Size Class 1 specimen with burning (Fig. 8.66). The rest of the remains included one cattle (*Bos taurus*) second phalanges, one bushbuck (*Tragelaphus scriptus*) femur with burning and gnawing, one bird long bone and one metacarpal, one common duiker (*Silvicapra grimmia*) humerus, one rock hyrax (P*rocavia capensis*) pelvis and one hyrax (*Procavia johnstoni*) mandible. There were seven unidentified bones recovered from this context.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Rib			Fractured shaft		5	1
	Radius/Ulna	Right	Fused	Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Hyoid	Left		Fragment			
Bovid size class 4	1st Phalanges		Fused	Whole		1	1
Bovid size class 3	Metapodial		Fused distal	Distal shaft		17	1
	Pelvis	Left		Fragment	Chopped		
	Scapula	Left		Fragment			
	Tibia	Left	Fused distal	Distal	Burnt		

	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Metacarpal		Fused proximal	Proximal			
	Metapodial		Fused distal	Distal shaft	Burnt		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal shaft			
Bovid size class 1	Tibia	Right	Fused proximal	Proximal shaft	Burnt	1	1
Bos taurus	2nd Phalanges		Fused	Whole		1	1
Tragalaphus scriptus	Femur	Right	Fused	Proximal	Gnawed, Burnt	2	1
	Metacarpal		Fused	Proximal shaft			
Silvicapra grimmia	Humerus	Right	Fused	Proximal		1	1
Procavia capensis	Pelvis	Right		Half		1	1
Procavia johnstoni	Mandible (G1)	Right		<Half		1	1
	Pre-molar 4 (G1)	Right		Whole			
Bird	Long bone			Fragment		1	1

Fig. 8.66 Table showing the identified zooarchaeological assemblage from [B2] Musanze III

The zooarchaeolgical sample increased in variety in the following context [B3] (Fig. 8.67). The context contained six Bovid Class 5 specimens, two with burning and one with gnawing, one Bovid Size Class 4 specimen, thirty-five Bovid Size Class 3 specimens, thirteen with burning, one Bovid Size Class 2 specimens with burning and four Bovid Size Class 2 specimens, two with burning. The domestic remains in this context included five cattle (*Bos taurus*) specimens including a mandible from an individual with a killed age class of L or IX (suggesting a very old animal >42 months) by molar tooth wear, and six sheep/goat (*Ovis/Capra*) specimens, one burnt and one gnawed. The identified wild specimens include two bushbuck (*Tragelaphus scriptus*) specimens one with gnawing, two kob (*Kobus kob*) specimens, one duiker (*Cephalophus*) specimen, one common duiker (*Silvicapra grimmia*) specimen, three *rodentia* specimens, one *Lagomorph* specimen and one bird specimen. This deposit contained nine unidentified specimens.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Radius	Left		Fractured shaft		3	1
	Metapodial			Fractured shaft	Burnt		
	Metacarpal		Fused Proximal	Proximal			
Bovid size class 4	Atlas			Almost whole		1	1
Bovid size class 3	Thoracic vertebra		Fused	Half		38	1
	Lumber vertebra		Fused	Half			
	Lumber vertebra		Fused	Almost whole			
	Lumber vertebra		Fused	<Half			
	Thoracic vertebra			Vertical process			
	Thoracic vertebra			Almost whole			
	Lumber vertebra			Fragment			
	Cranial vertebra		Fused	Almost whole			
	Lumber vertebra			Fragment			
	Radius	Left	Unfused proximal	Proximal shaft	Burnt		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Scapula	Left		Fragment			
	1st phalanges		Unfused	Whole			
	Cranial vertebra			Fragment	Gnawed		
	Thoracic vertebra			Fragment			
	Metapodial			Fractures shaft	Burnt		
	Scapula	Right		<Half			
	Thoracic vertebra			Almost whole	Burnt		
	Lumber vertebra			Horizontal process			
	1st Phalanges		Fused proximal	Proximal, Shaft	Burnt		
	Rib			Fractured	Burnt		

				shaft			
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Proximal, Shaft	Burnt		
	Rib			Proximal, Shaft	Burnt		
	Rib			Proximal, Shaft	Burnt		
	Rib			Proximal, Shaft	Burnt		
	Metapodial			Fractured shaft			
	3rd Phalanges		Fused	Whole			
	Cranium			Fragment			
	Cranium			Fragment			
	Cranium			Fragment			
	Cranium			Fragment			
Bovid size class 2	Femur	Right		Fractured shaft	Burnt	3	2
	Femur	Right		Fractured shaft	Burnt		
	Atlas			Whole	Burnt		
Bovid size class 1	Thoracic vertebra		Fused	Almost whole		2	1
	Scapula	Right		Fragment			
Bos taurus	Mandible (G1)	Left	AC L or 9	<Half		4	1
	Molar 1 (G1)	Left	AC L or 9	Whole			
	Molar 2 (G1)	Left	AC L or 9	Whole			
	Molar 3 (G1)	Left	AC L or 9	Whole			
	Radius	Right	Unfused distal epiphysis	Distal epiphysis			
	Incisor			Whole			
	Cranium			<Half			
Ovis/Capra	Atlas			Almost whole		6	1
	Femur	Right	Fused proximal	Proximal shaft	Burnt		
	Tibia	Right	Fused proximal	Proximal	Gnawed		
	Humerus	Right	Fused distal	Distal, Shaft			
	Metacarpal		Fused	Whole			
	Metatarsal		Fused	Whole			

Tragalaphus scriptus	2nd Phalanges		Fused	Whole	Gnawed	2	1
	Mandible (G2)	Right		<Half			
	Molar 1 (G2)	Right		Whole			
	Molar 2 (G2)	Right		Whole			
Kobus kob	Radius	Right	Fused	Proximal		2	1
	Radius	Right	Fused	Distal shaft			
Cephalophus	Calcaneum		Fused	Whole		1	1
Silvicapra grimmia	Scapula	Right		Half		1	1
Lagomorph	Scapula	Left	Fused	Almost whole		1	1
Bird	Sacrum			<Half		1	1
Rodent	Maxilla	Left		<Half		3	2
	Femur	Left	Fused	Whole			
	Maxilla			<Half			

Fig. 8.67 Table showing the identified zooarchaeological Assemblage from [B3] Musanze III

The stratigraphically second earliest deposit (B4) contained fifteen Bovid Size Class 5 specimens, four with knife cut marks and one burnt, nineteen Bovid Size Class 3 specimens, three with burning and one with knife cut marks, one Bovid Size Class 2 specimen and three Bovid Size Class 1 specimens, one with burning (Fig. 8.68). The domesticated remains included five cattle (*Bos taurus*) specimens, one with knife cut marks, and two sheep/goat (*Ovis/Capra*) specimens, one with knife cut marks. The other remains included two *Lagomorph* specimens, seven bird specimens, nine rodent specimens, one *Loxodonta africana* specimen, one bushbuck (*Tragelaphus scriptus*) astragalus with burning, one common duiker (*Silvicapra grimmia*) and one hyrax (*Procaviidae*) specimen. There were twenty-one unidentified specimens from this context.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Ulna carpal	Left		Whole		15	1
	Vertebra			Fragment			
	Radius	Right	Unfused distal	Distal, Shaft	Knife cut		
	Rib			Fractured shaft			
	Scapula	Right		Fragment			1
	Rib			Fractured shaft	Knife cut		
	Humerus	Left		Fractured shaft	Knife cut		

	2^{nd} Phalanges			Half			
	Rib			Fractured shaft	Knife cut		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Pelvis			Fragment	Burnt		
	Pelvis			Fragment			
	Pelvis		Unfused	Fragment			
	Ulna	Right		Fractured shaft			
Bovid size class 3	Thoracic vertebra		Unfused	Vertical process		19	1
	Atlas			Almost whole			
	Thoracic vertebra		Fused	<Half			
	Thoracic vertebra		Fused	Almost whole			
	Metapodial		Unfused distal epiphysis	Distal epiphysis	Burnt		
	Metapodial		Unfused distal	Distal, Shaft	Burnt		
	Humerus	Right	Unfused proximal epiphysis	Proximal epiphysis			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal			
	Rib			Proximal			
	Mandible	Left		Fragment			
	Thoracic vertebra			<Half			
	Rib			Proximal, Shaft	Knife cut		
	Femur		Unfused distal	Distal, Shaft			
	Femur		Unfused distal epiphysis	Distal epiphysis			
	Rib			Proximal, Shaft	Burnt		
	Caudial vertebra		Fused	<Half			
	Humerus	Left	Proximal fused	Proximal			
Bovid size class 2	Metapodial			Fractured shaft		1	1
Bovid size class 1	Scapula	Left		<Half		5	1
	Rib			Fractured shaft			
	Rib			Proximal shaft			
	Rib			Fractured shaft			
	3^{rd}		Fused	Whole	Burnt		

	Phalanges						
Bos taurus	Upper pre-molar 3	Left		Almost whole		5	1
	Calcaneum	Left		Whole			
	Pelvis	Left		<Half			
	Radius	Left	Fused proximal	Proximal			
	2nd Phalanges		Fused	Whole	Knife cut		
Ovis/Capra	Tibia	Right	Unfused distal epiphysis	Distal epiphysis		2	1
	1st Phalanges		Fused	Whole	Knife cut		
Bird	Pelvis			Fractured shaft		7	1
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Tibia	Right	Fused	Almost whole			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Cranial vertebra			Almost whole			
Loxidonta africana	2nd Phalanges (G1)		Unfused	Whole		1	1
	2nd Phalanges (G1)		Unfused	Distal epiphysis			
Tragalaphus scriptus	Astragalus		Left	Whole	Burnt	1	1
Silvicapra grimmia	Radius	Right	Uunfused distal	Whole		1	1
Procaviidae	Humerus	Right	Fused	Whole		1	1
Lagomorph	Scapula	Left		Almost Whole		2	1
	Pelvis			Fragment			
Rodent	Maxilla			<Half		9	4
	Maxilla			<Half			
	Maxilla			<Half			
	Maxilla			<Half			
	Incisor			Whole			
	Femur	Left	Fused	Whole			
	Tibia	Right	Fused	Whole			
	Tibia	Right	Fused	Whole			

	Incisor			Fractured shaft			

Fig. 8.68 Table showing the identified zooarchaeological assemblage from [B4] Musanze III

The zooarchaeological assemblage from Musanze III was very similar to that found in Musanze II. They both contained immature elephant remains alongside a variety of other wild species and domestic species. The Musanze III assemblage also contained specimens that had been killed at a variety of ages suggesting that no specialised kill model was in place for either the wild or domestic species exploited. Furthermore, examples of heavy butchery on the cattle mandible and scapulas suggest that the cave occupants were employing maximisation strategies to gain the greatest possible nutritional yield from each carcass, perhaps suggesting that they did not always have a meat surplus, which in relation to the domestic species, may in turn suggest that they were not primarily herders with sustained access to meat that a herd could provide.

8.16 Palaeobotanical Analysis

Three samples were taken from unit B from the three earliest deposits. Unfortunately none of these samples preserved any palaeobotanical remains. Two samples were taken from the earliest deposits in unit A and these preserved charred finger millet (*Eleusine coracana*) paleobotanical remains from deposits [A3] and [A4]. Context [A3] produced two charred finger millet seeds and two charred fragments, whilst context [A4] produced five charred finger millet seeds, and unlike the finger millet remains from Musanze II these were not crystallised. Whilst it is unfortunate that remains were not found within the radiocarbon dated deposit in test excavation unit B these remains do demonstrate that finger millet was being utilised by the occupants of the cave during the Late Iron Age and support the evidence from Musanze II.

8.17 Other Finds

The small finds recovered from the excavations at Musanze III included iron and bone objects. In deposit [A2] a small section of a triangular ivory bracelet was found displaying a series of fine incised circles decorated on its surface (Fig. 8.69) alongside a broken iron bracelet. The following context [A3] contained a white shell bead and an obscure iron object. The earliest stratigraphic deposit [A4] contained a spearhead (Fig. 8.70) and an iron bracelet, possibly a child's based on its small size. Only three small finds were made from the excavations in test unit B, a billhook blade from deposit [B3], and a white shell bead (Fig. 8.71) and a base of an arrow head (Fig. 8.72) from the earliest stratigraphic deposit [B4]. These latter finds are important because they come from the only dated context in the cave and are potentially from the beginning of the 2nd millennium AD and may relate to hunting and the procurement of food at that time. The spearhead and arrowhead also present a rare opportunity to study the end results of iron production at this time.

Fig. 8.69 Photograph showing a broken section of a decorated ivory bracelet from [A2] Musanze III

Fig. 8.70 Photograph showing broken iron spearhead from [A4] Musanze III

Fig. 8.71 Photograph showing a shell bead from [B4] Musanze III

Fig. 8.72 Photograph showing the base of a broken arrowhead from [B4] Musanze III

8.18 Musanze IV

The entrance to Musanze IV is located at southing 01.30.505, easting 029.36.915 and elevation 1852m and there is a small dry-stone wall at the foot of the entrance (Fig 8.73). The cave has a large tree growing in its entrance that is believed locally to mark the location of an ancient grave. The test excavation unit at Musanze IV was

2x2m and was excavated to a depth of 1m before reaching bedrock (Fig 8.74). The first context [A1] was light greyish silt with frequent Late Iron Age pottery and bone and a lens of calciferous material [A2]. Beneath this was light greyish brown silt [A3] with frequent pottery and bone. This context was the most clearly defined, sitting beneath a line of stones and above a thin white calciferous deposit. This context also contained a thin calciferous lens and frequent Late Iron Age pottery, bone and charcoal. The next context [A4], brownish black silt, was followed by the earliest context [A5], blackish brown silt, which contained the largest zooarchaeological assemblage alongside roulette-decorated ceramics.

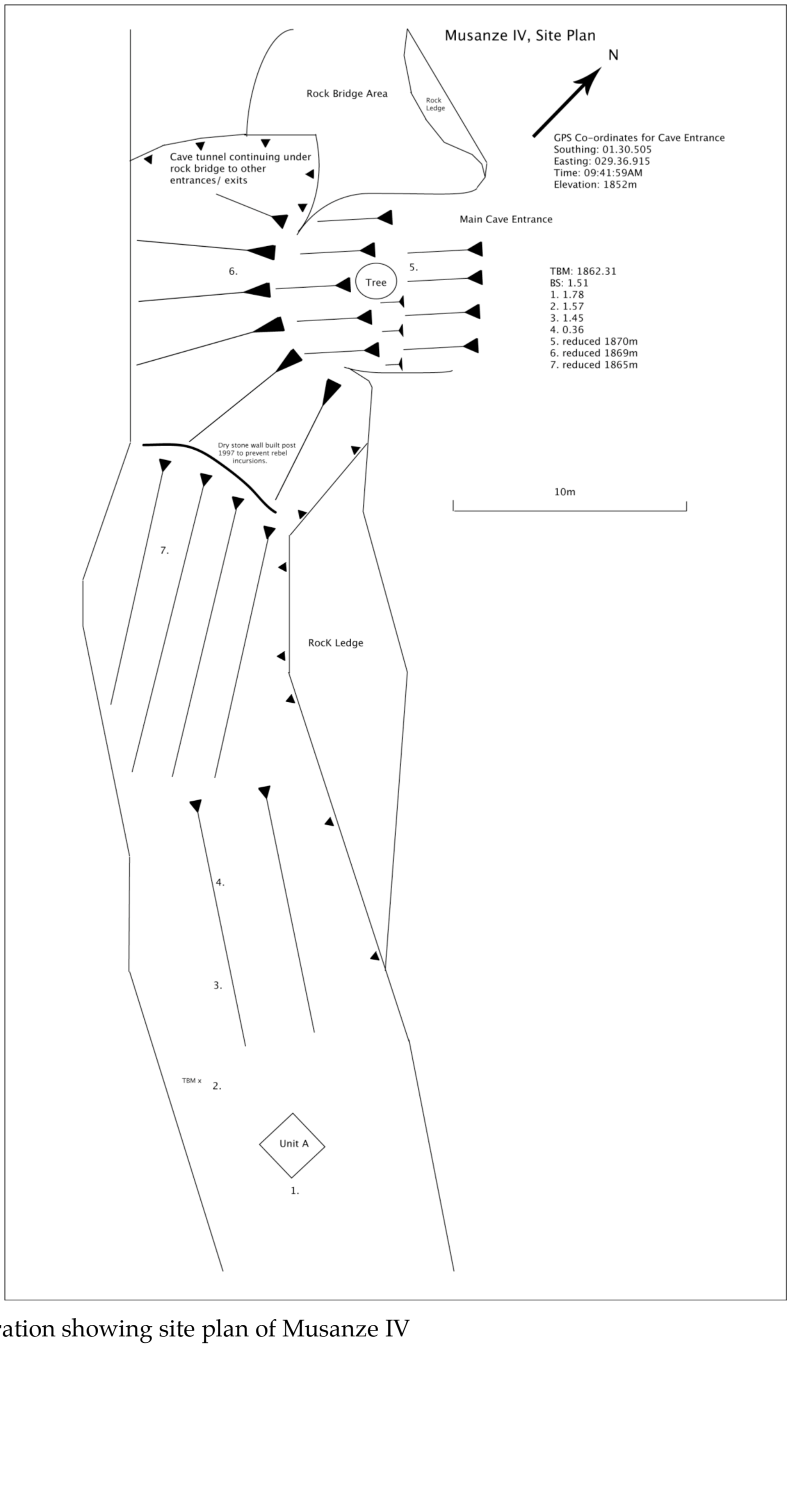

Fig. 8.73 Illustration showing site plan of Musanze IV

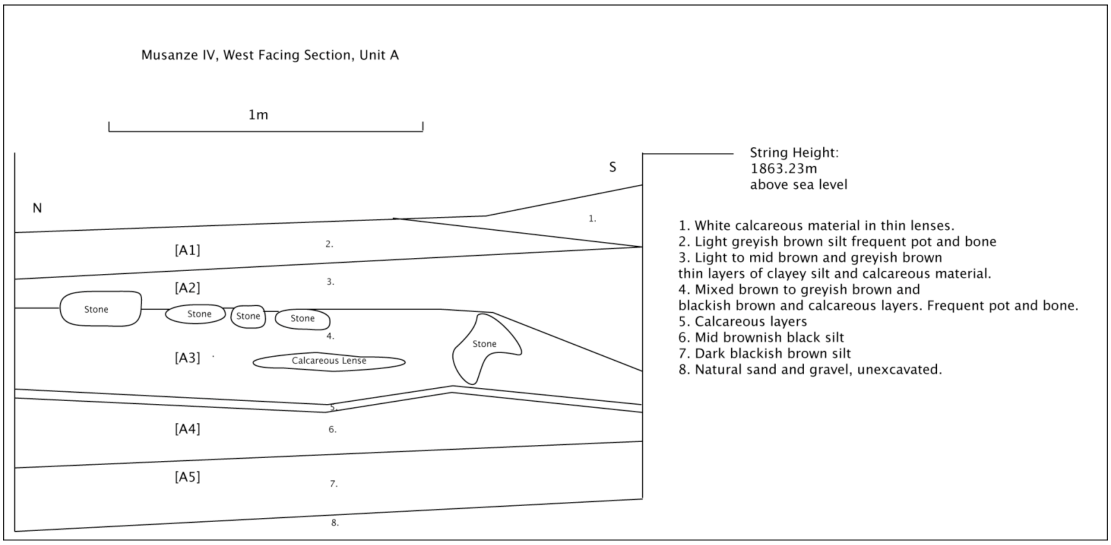

Fig. 8.74 Illustration showing west-facing section of Unit A, Musanze IV

Due to funding limitations no radiocarbon dates were sought for Musanze IV because more suitable dateable samples had already been identified from Musanze II and III. However, the archaeological material recovered from Musanze IV can be dated typologically to the Late Iron Age based on the twisted-string roulette-decorated ceramics that occurred throughout the excavations and the material is very similar to that recovered from Musanze II and III.

8.19 Ceramic Analysis

Technological Profile

The total ceramic assemblage from Musanze IV weighed 25.66kg and consisted of eight fabric groups, including M1 (65%), M2 (7.5%), M3 (0.5%), M5 (0.5%), M6 (5%), M7 (2%), M10 (17%), M11 (1%) and miscellaneous (1%). The ceramic assemblage from the earliest deposit encountered in the test excavations at Musanze IV [A5] weighed 2.71kg and contained six fabric groups including M1 (52%), M2 (3%), M6 (22%), M7 (2.5%), M10 (16.5%), M11 (2%) and miscellaneous (2%). Seven fabric groups were identified within the assemblage from context [A4] (1.29kg) including fabrics M1 (15.5%), M2 (29.5%), M5 (2.5%), M6 (22%), M7 (18%), M10 (11.5%) and M11 (1%). Of significance here is the reappearance of fabric M5, the fine black burnished ware that was also identified in the later deposits of Musanze II. The ceramic assemblage from the following context [A3] was significantly larger, weighing 7.59kg, and was made up of six fabrics including M1 (60%), M2 (10%), M6 (4.5%), M7 (1.5%), M10 (21%), M11 (2%) and miscellaneous (1%). The following context [A2] contained a similar sized assemblage, 8.76kg, and contained seven fabrics including M1 (52%), M2 (3%), M6 (22%), M7 (2.5%), M10 (16.5%), M11 (2%) and miscellaneous (2%). In this assemblage M5 is again represented and fabric M3 reappears. The most recent deposit excavated in Musanze IV [A1] contained an assemblage weighing 5.49kg and consisted of six fabrics including M1 (74.5%), M2 (13%), M5 (0.5%), M6 (0.5%), M7 (2%), M10 (8%) and miscellaneous (1.5%). The technological profile from Musanze IV describes an assemblage with a varied if broadly stable group of fabrics. Fabrics M1, M2, M6, M7 and M10 dominate the deposits from Musanze IV, with rare appearances of M3, M5 and M11.

Morphological Profile

Forty-six reconstructable vessels were recovered from the total ceramic assemblage. Jars were the most common vessel type identified, consisting of globular everted necked jars (31%) and straight-necked jars (31%) (Fig. 8.75, c), with the remaining assemblage made up of beakers (13.5%) (Fig. 8.73 and 8.75), closed bowls (11%) (Fig. 8.75, d), hemispherical bowls (8%), flared mouth bowls (2.5%) and open bowls (2%). This is an approximately 62:38 ratio in favour of jars and matches the assemblages from Musanze II and III and continues to suggest the importance of large storage and pouring vessels at this locality during this period.

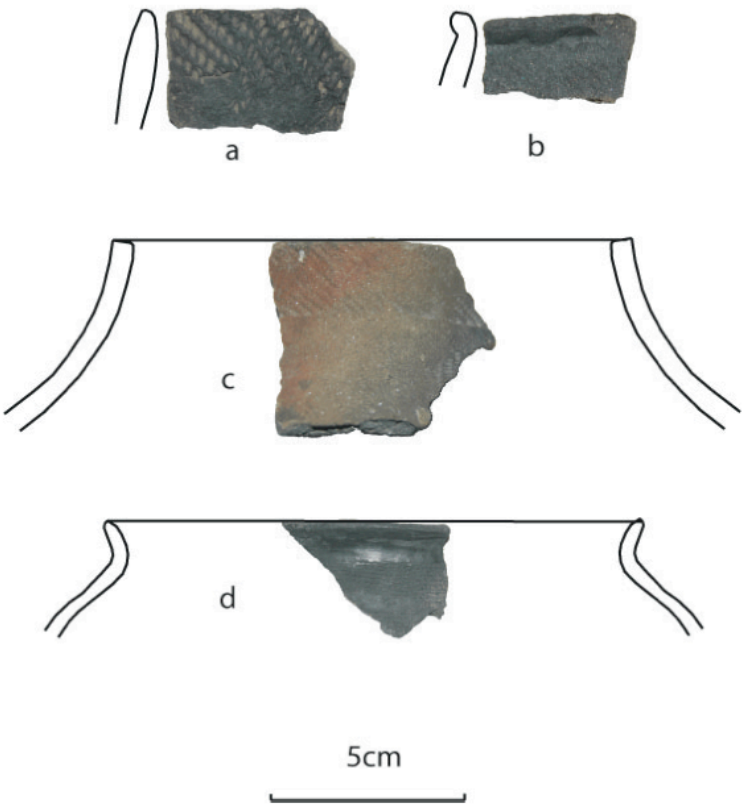

Fig. 8.75 Illustrated photograph showing rim types and reconstructable vessels from Musanze IV, including a simple rounded rim (a), an everted rim (b), a straight-necked jar (c) and a everted necked closed bowl from fabric M5 (d)

Fig. 8.76 Illustrated photograph showing a beaker with handle from Musanze IV

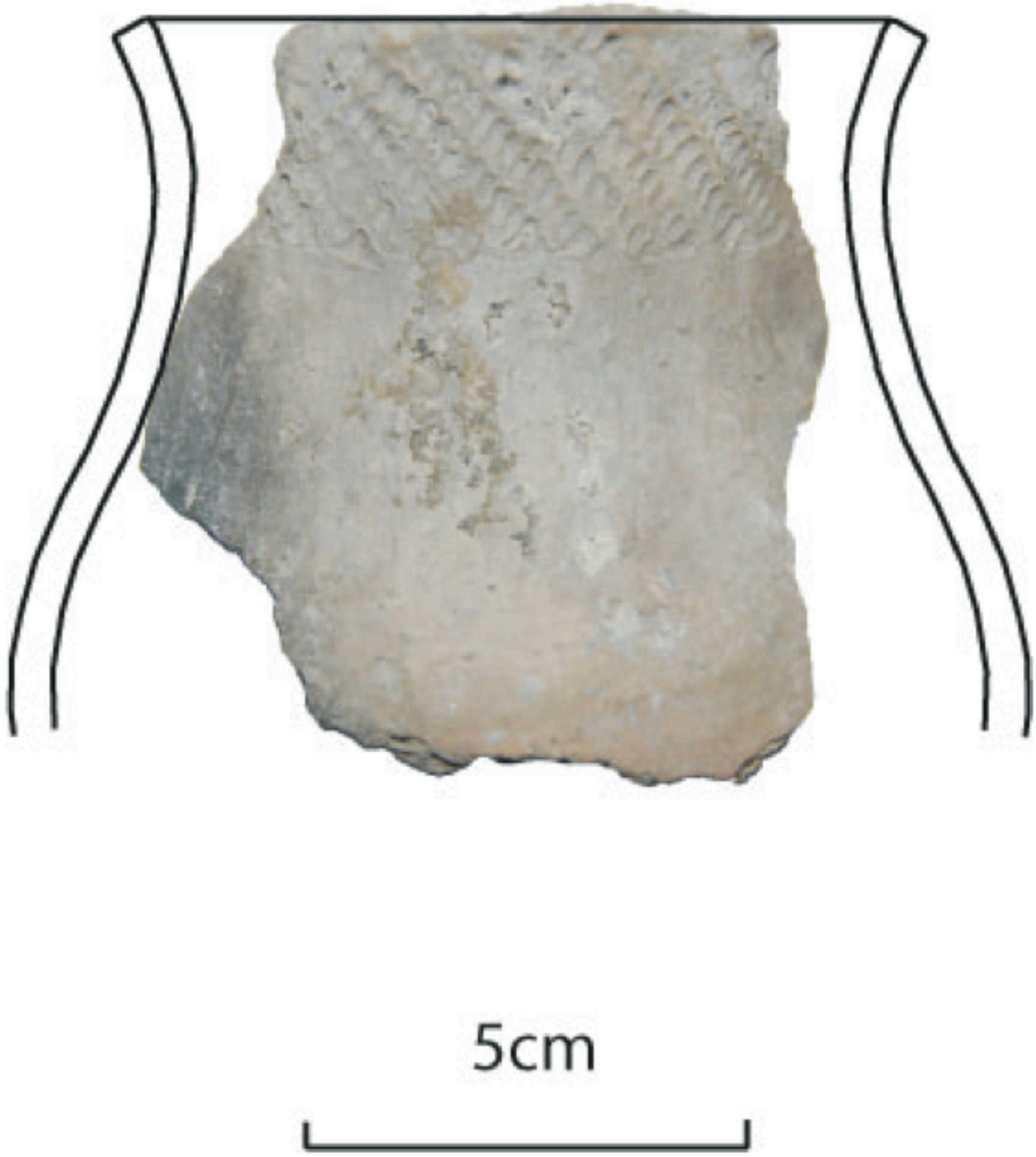

Fig. 8.77 Illustrated photograph showing a beaker from Musanze IV

	M1	M2	M3	M5	M6	M7	M10
Globular everted rim jars	25%	0%	0%	0%	100%	66.6%	40%
Straight necked jars	25%	0%	100%	0%	0%	33%	60%
Hemispherical bowls	12.5%	0%	0%	25%	0%	0%	0%
Open bowls	21%	0%	0%	0%	0%	0%	0%
Closed bowls	12.5%	100%	0%	25%	0%	0%	0%
Flared bowls	0%	0%	0%	25%	0%	0%	0%
Beakers	4%	0%	0%	25%	0%	0%	0%

Fig. 8.78 Table showing the relationship of fabric to form from the total assemblage from Musanze IV (n=46)

The analysis of fabric group relative to vessel form (Fig 8. 78) suggests that there may be a correlation between vessel form and vessel fabric. For example, whilst fabric M1 occurs evenly between bowls and jars, fabrics M6, M7 and M10 (fifteen vessels) are confined to jars, whilst M2, M3 and M5 are confined to bowls (six vessels) (Fig. 8.79) However, due to the small size of the assemblage this pattern remains speculative and with the exception of fabric M5 has not been replicated in the other caves.

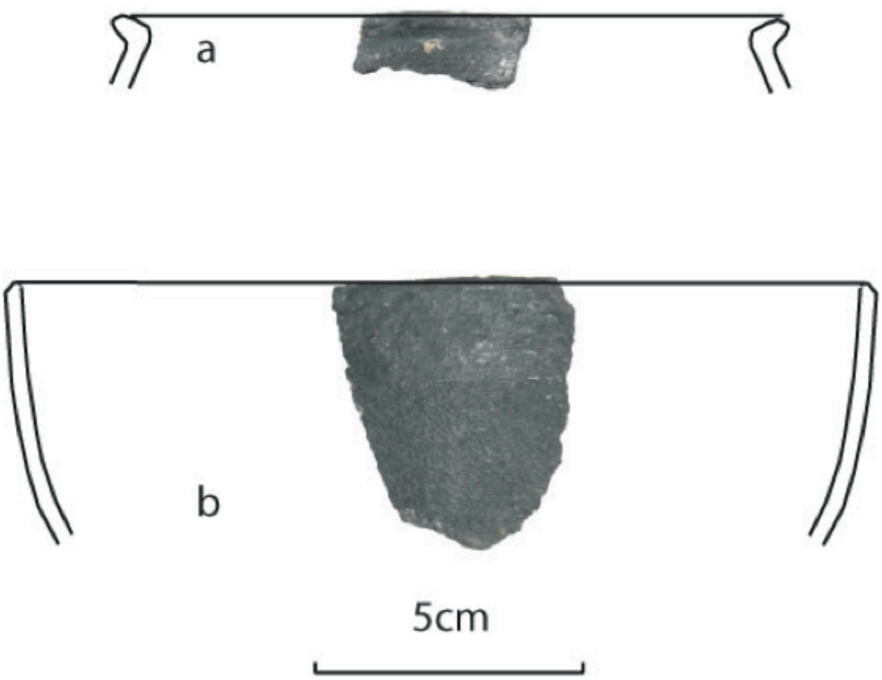

Fig. 8.79 Illustrated photograph showing fabric M5 from Musanze IV, including an everted necked closed bowl (a) and a hemispherical bowl (b)

	M1	M2	M3	M5	M6	M7	M10
Globular everted rim jars	43%	0%	0%	0%	14%	14%	29%
Straight necked jars	43%	0%	7%	0%	0%	7%	43%
Hemispherical bowls	75%	0%	0%	25%	0%	0%	0%
Open bowls	100%	0%	0%	0%	0%	0%	0%
Closed bowls	60%	20%	0%	20%	0%	0%	0%
Flared bowls	0%	0%	0%	100%	0%	0%	0%
Beakers	83%	0%	0%	17%	0%	0%	0%

Fig. 8.80 Table showing the relationship of form to fabric from the assemblage from Musanze IV (n=46)

The pattern is also less clear when the vessel form is analysed in relation to fabric group (Fig. 8.80). Whilst open bowls are restricted to fabric M1, and flared mouth bowls are restricted to fabric M5 the remainder occur within more than one fabric group and this distribution again demonstrates the predominance of fabric M1 within the assemblage.

The range of rim types within the reconstructable assemblage from Musanze IV (Fig. 8.81) was similar to that found at Musanze II and III and included simple squared, rounded, tapered, thickened and folded rims (Fig. 8.82).

	Squared	Rounded	Tapered	Thickened	Folded
Globular everted rim jar	7	3	1	0	3
Straight necked jar	12	3	1	0	0
Hemispherical bowl	0	0	4	0	0
Open bowl	0	1	0	0	0
Closed bowl	2	1	1	1	0
Flared mouth bowl	0	0	0	2	0
Beaker	0	0	0	1	6

Fig. 8.81 Table showing the occurrence of rim types relative to form from Musanze IV

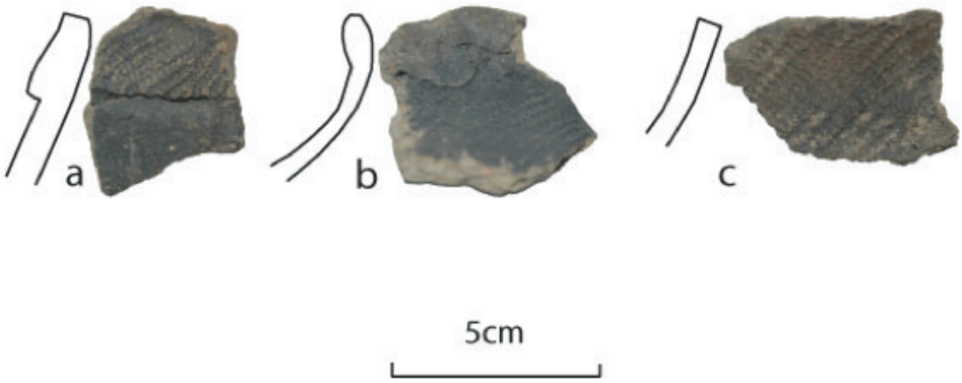

Fig. 8.82 Illustrated photograph showing rim types from Musanze IV, including folded (a), rounded (b) and squared (c)

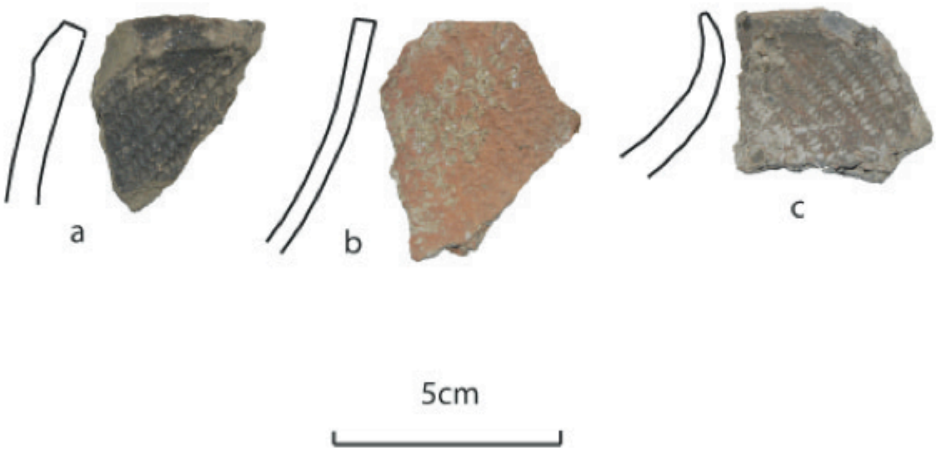

Fig. 8.83 Illustrated photograph showing rim types from Musanze IV, including thickened (a), squared (b) and tapered (c)

Forty-six decorated reconstructable vessels were recovered from Musanze IV. One of the vessels, a closed bowl from the second context [A2], was decorated with a horizontal line of punctates, and the remainder were decorated with twisted-string rouletting. Identified within the total assemblage were three sherds with knotted-strip rouletting from the most recent context [A1] and two from the second context [A2]. This can be contrasted with the three hundred and seventy-one twisted-string decorated sherds recovered from the test excavations.

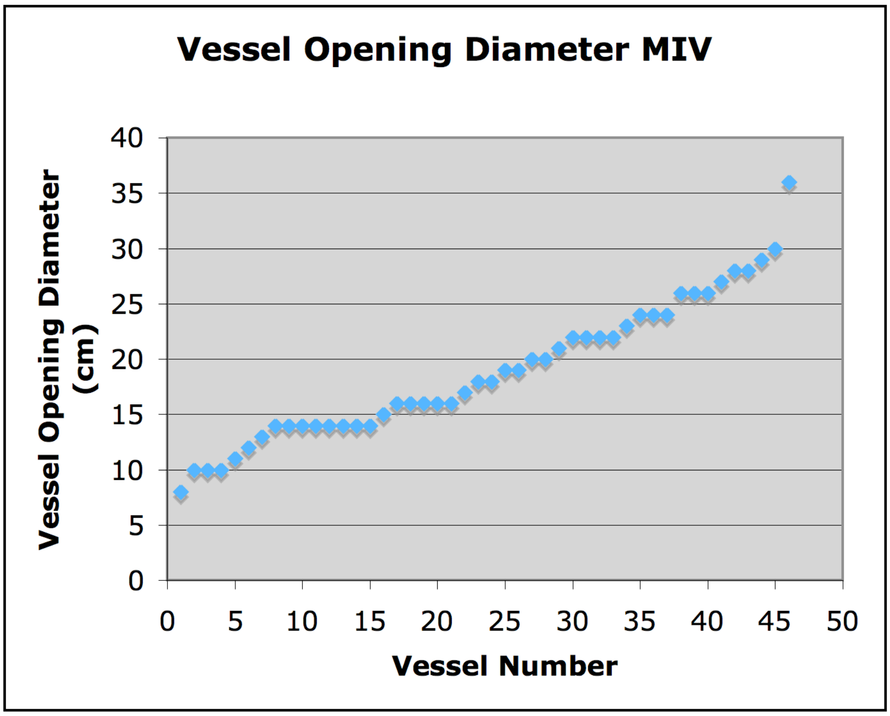

Fig. 8.84 Graph showing reconstructable vessel opening diameters from Musanze IV (MIV)

Musanze IV produced forty-six reconstructable vessels that were sufficiently complete for a vessel opening diameter estimate to be made (Fig. 8.84). The analysis records a similar range to that for Musanze II and III with the majority spread from 10-30cm and again there is no clear functional association between vessel opening and form with a variety of sizes for all vessels.

	Diagonally left	Diagonally right	Horizontal
Globular everted rim jar	7	7	0
Straight necked jar	2	12	0
Hemispherical bowl	1	2	1
Closed bowl	2	2	0
Flared mouth bowl	0	0	2
Beaker	4	1	1

Fig. 8.85 Table showing the occurrence of different twisted-string rouletting directions relative to vessel form from Musanze IV

The general direction of rouletting appears to be broadly evenly split, with a total of sixteen examples of left rouletting and twenty-four examples of right rouletting (Fig. 8.85). However, there is a preference for left rouletting in the straight-necked jars with a ratio of 2:12. It is notable that the four vessels decorated with horizontal rouletting are from the fabric group M5, the very fine black burnished ware. This is consistent with the results from Musanze IV where all the decorated examples of fabric M5 were decorated with horizontal rouletting. The single example of punctate decoration from Musanze IV also came from the M5 group.

	Lip	Neck	Body	Interior
Globular everted rim jar	10	14	5	6
Straight necked jar	15	15	5	8
Hemispherical bowl	1	3	3	0
Closed bowl	5	4	0	1
Flared mouth bowl	0	2	1	0
Beaker	3	5	2	1

Fig. 8.86 Table showing the incidence of decoration relative to decorative zone and vessel form from Musanze IV

The incidence of decoration relative to decorative zone and vessel form (Fig. 8.86) once again demonstrates the preference for decoration on the lip and neck and less commonly the body and the vessel interior. There was no interior rouletting on the hemispherical or flared mouthed bowls and decoration was absent from the lip and body of the flared mouth bowl and closed bowl respectively.

The only surface treatment observed within the total ceramic assemblage from Musanze IV was burnishing on the M5 fabric vessels. There were three bases and five handles identified within the total ceramic assemblage from Musanze IV. In the most recent context [A1] a conical base was identified, in the second context [A2] a flat base was identified with a raised semi-circular interior and a handle with two vertical bands decorated with twisted-string roulette. In the third context [A3] three handles were identified, these were single banded, double banded and triple banded, all decorated with twisted-string roulette decoration alongside a simple flat base. There were no handles or bases found in the following context [A4], but in the earliest context [A5] a single band handle decorated with twisted-string rouletting was found. Whilst these elements are very limited in number restricting their interpretative value, they once again demonstrate that a range of base types exist in the Late Iron Age typology and that decorated handles exist from the earliest deposits through to the most recent. They also exhibit variation through the number of vertical clay bands they employ.

The ceramic assemblage from Musanze IV conforms to those from Musanze II and III and to the excavated material from Van Noten's (1983) excavations. Again there is a greater frequency of jars compared to bowls, and there is a range of coarse fabrics alongside the fine M5 fabric, confined to burnished-bowl vessel forms, and decorated with horizontal twisted-string rouletting alongside other less dominant angles. There is a range of rim forms but these are confined to simple rim forms and again the decoration is overwhelmingly dominated by twisted-string rouletting but does not exhibit any preference for direction.

8.20 Zooarchaeological Analysis

The zooarchaeological assemblage from contexts [A1] and [A2], the most recent archaeological deposits encountered at Musanze IV, was very small and only contained one Bovid Size Class 3 specimen, fourteen cattle (*Bos taurus*) specimens, one human (*Homo sapiens*) mandible, one rodent incisor and forty-three unidentified bone fragments (Figs. 8.87 and 8.88). The human mandible had suffered severe trauma, which suggests that this specimen is the result of recent 20th century conflicts and therefore tentatively dates these deposits to the modern era.

Taxon	Element	Side	Aging	Part	NISP	MNI
Bovid size class 3	Lower premolar 3	Right		Whole	1	1
Bos taurus	Mandible	Left		<Half	14	3
	Mandible	Left		Fragment		
	Mandible	Left		Fragment		
	Upper molar 3	Right		Whole		
	Upper molar 2	Left		Whole		
	Upper deciduous 3	Left	Immature	Whole		
	Upper deciduous 2	Left	Immature	Whole		
	Incisor			Whole		
	Incisor			Whole		
	Incisor			Whole		
	Incisor			Whole		
	Incisor			Whole		
	Incisor			Whole		
	Incisor			Whole		

Fig. 8.87 Table showing the identified zooarchaeological assemblage from [A1] Musanze IV

Taxon	Element	Side	Part	NISP	MNI
Homo sapiens	Mandible	Left	<Half	1	1
Rodent	Incisor		Whole	1	1

Fig. 8.88 Table showing the identified zooarchaeological assemblage from [A2] Musanze IV

The zooarchaeological assemblage increased significantly in the following context [A3] (Fig. 8.90). Identified within this assemblage were ninety-three unidentified fragments; twenty Bovid Size Class 5 specimens, one burnt and one with both gnawing and knife cut marks; three Bovid Size Class 4 specimens; thirty-one Bovid Size Class 3 specimens, five with knife cut marks, one with chop marks, one with gnawing and two burnt; seven Bovid Size Class 1 specimens; four bird specimens; and two rodent specimens. Domesticated species were represented by nine cattle (*Bos taurus*) specimens, one with knife cut marks, displaying gnawing and etching marks, and one 1st phalange with puncture marks resulting from hammering the shaft open, allowing access to the marrow, and seven sheep/goat (*Ovis/Capra*) specimens, one with chop marks and one with burning. The aging evidence from these domestic remains suggests that these animals were killed at a variety of ages because the specimens come from a range of un-fused, just fused and mature specimens, and display a range of tooth eruption and wear. The wild specimens included a common duiker (*Silvicapra grimmia*) metatarsal, two bushbuck (*Tragelaphus scriptus*) specimens, and one great forest hog (*Hylochoerus meinertzhageni*) metacarpal. The cattle 1st phalange with puncture marks was particularly interesting because it suggests the occupants of the caves had limited access to meat, and were attempting to access the smallest nutritional return areas of the animals (Fig. 8.89).

Fig. 8.89 Illustrated photograph showing a cattle phalanges with marrow extraction marks, Musanze IV

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Metatarsal			Fractured shaft		20	2
	Calcaneum	Right		Fractured shaft			
	Thoracic vertebra		Unfused cranial	<Half			
	Thoracic vertebra			Vertical process			
	Thoracic vertebra			Vertical process			
	Scapula			Fractured shaft			
	Scapula			Fractured shaft			
	Pelvis			Fragment			
	Pelvis			Fragment	Burnt		
	Rib			Proximal			
	Rib			Proximal			
	Metapodial			Fractured shaft			
	Pelvis			Fragment			
	Pelvis			Fragment			
	Femur			Fragment			
	Femur	Left		Fractured shaft	Knife cut, Gnawed		
	Femur	Left		Proximal, Shaft			
	Atlas			Almost whole			
	Mandible			Fragment			

	Incisor			Whole			
Bovid size class 4	Thoracic vertebra		Unfused cranial, fused caudial	<Half		3	1
	Patella			Almost whole			
	Scapula	Right		<Half			
Bovid size class 3	Metacarpal	Left		Proximal		31	1
	Metapodial			Fractured shaft	Gnawed, Burnt		
	Metapodial		Unfused distal epiphysis	Unfused distal epiphysis			
	Ulna	Left	Unfused	<Half			
	Radius	Left	Fused proximal	Proximal			
	Lumber vertebra		Unfused	<Half	Knife cut		
	Lumber vertebra			<Half			
	Lumber vertebra			<Half			
	Cervical vertebra		Unfused	Whole			
	Cervical vertebra		Unfused	Whole	Knife cut		
	Cranial vertebra			<Half	Knife cut		
	Cranial vertebra			<Half	Knife cut		
	Lumber vertebra			<Half	Chopped		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal			
	Rib			Fractured shaft	Burnt		
	Rib			Proximal			
	Rib			Proximal			
	Lumber vertebra			Horizontal process	Knife cut		
	Vertebra			Fragment			
	Vertebra			Fragment			
	Humerus	Right		Fractured shaft	Gnawed		
	Mandible	Left		Fragment			
	Mandible	Left		Fragment			
	Cranium			Fragment			
	Cranium			Fragment			
	Cranium			Fragment			
	Cranium			Fragment			
	Cranium			Fragment			
	Cranium			Fragment			

	Cranium			Fragment			
	Cranium						
Bovid size class 1	Cervical vertebra		Fused	<Half		7	1
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal			
	Rib			Proximal			
	Rib			Proximal			
Bos taurus	Metacarpal	Right	Fused	Whole	Knife cut	9	1
	1st Phalanges	Left	Fused	Whole	Punched		
	Nevicular Cuboid	Left		Whole			
	Tibia	Left	Fused proximal	Proximal			
	Carpal			Whole			
	1st Phalange		Unfused proximal epiphysis	Proximal epiphysis			
	Femur	Left	Unfused proximal epiphysis	Proximal epiphysis			
	Carpal			Whole			
	LI2			Fragment	Gnawing, Etching		
Ovis/Capra	Metacarpal	Left		Proximal	Burnt	7	1
	Humerus	Left	Fused	Proximal			
	Pelvis	Left	Just fused	Fragment	Chopped		
	Ulna	Right	Unfused	Proximal			
	3rd Phalanges			Whole			
	3rd Phalanges			Whole			
	Mandible (G1)	Right	24-48 months	<Half			
	3rd premolar (G1)	Right	24-48 months	Whole			
	4th premolar (G1)	Right	24-48 months	Whole			
	1s molar (G1)	Right	24-48 months	Whole			
Bird	Sacrum			<Half		4	1
	Pelvis			Almost whole			
	Scapula	Left		Almost whole			
	Metapodial			Almost whole			
Silvicapra grimmia	Metatarsal		Fused	Proximal		1	1
Tragelaphus scriptus	Metatarsal		Fused	Distal		2	1
	Metacarpal		Fused	Proximal			

Hylochoerus meinertzhageni	Metacarpal		Fused	Distal, Shaft		1	1
Rodent	Mandible	Left		Almost whole		2	1
	Maxilla	Right		Almost whole			

Fig. 8.90 Table showing the identified zooarchaeological assemblage from [A3] Musanze IV

The following context [A4] again contained twelve Bovid Size Class 5 specimens, one gnawed and one burnt; thirty two Bovid Size Class 3 specimens, five burnt and one with knife cut marks; three Bovid Size Class 1 specimens, one with burning; and five bird specimens. The identified domestic species consisted of three cattle (*Bos taurus*) specimens and one sheep/goat (*Ovis/Capra*) specimen. Two common duiker (*Silvacapra grimmia*) specimens, one bushbuck (*Tragelaphus scriptus*) specimen with knife cut marks and one wild pig (*Suidae*) specimen represented the identified wild species (Fig. 8.90).

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Scapula	Right		<Half	Gnawed	12	1
	Metatarsal		Unfused distal	>Half			
	Metapodial			Fractured shaft			
	Metapodial			Fractured shaft			
	Cranial vertebra			<Half			
	Calcaneum	Left		Proximal	Burnt		
	Metatarsal			Fractured shaft			
	Metatarsal			Fractured shaft			
	Sessamoid			Whole			
	Pelvis			Fragment			
	Rib			Fractured shaft			
	Hyoid			Almost whole			
Bovid size class 3	Rib			Fractured shaft	Knife cut	32	2
	Metapodial			Fractured shaft			
	Metapodial		Proximal fused	Proximal			
	Scapula	Right		<Half			
	Scapula	Left		<Half			
	Rib			Fractured shaft			
	Radius	Left		Fractured shaft			
	Lumber vertebra		Unfused	Whole			
	Scapula	Left	Immature	<Half			
	Scapula	Right		Proximal fragment			
	Humerus	Right		Fractured shaft			
	Cranial vertebra			Fragment			

	Lumber vertebra		Fused	>Half	Burnt		
	Vertebra			<Half	Burnt		
	Cranial vertebra			Vertical process			
	Femur	Right		Fractured shaft	Burnt		
	Radius	Left	Unfused distal epiphysis	Distal epiphysis			
	Metapodial		Unfused distal	Distal	Burnt		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal, Shaft			
	Tibia	Right	Unfused distal epiphysis	Distal epiphysis	Burnt		
	Humerus	Left	Unfused	Proximal			
	Mandible	Left		Fragment			
	Cranium			Fragment			
	Orbital	Right		Fragment			
	Maxilla (G1)	Right		Half			
	Molar 2 (G1)	Right		Whole			
	Molar 1 (G1)	Right		Whole			
	Pre-molar 4 (G1)	Right		Whole			
	Pre-molar 3 (G1)	Right		Whole			
	Pre-molar 2 (G1)	Right		Whole			
	Mandible (G2)	Left		<Half			
	Molar 1 (G2)	Left		Whole			
	Molar 2 (G2)	Left		Whole			
	Mandible	Left		Fragment			
	Cranium			Fragment			
Bovid size class 1	Rib			Fractured shaft		3	1
	Rib			Fractured shaft			
	2nd Phalanges		Fused	Almost whole	Burnt		
Bos taurus	Lumber vertebra		Fused caudial	<Half		3	1
	Astragalus	Right		>Half			
	Pelvis	Left		<Half			
Ovis/Capra	Femur	Right	Fused proximal	Proximal, Shaft		1	1
Bird	Tibia	Left		Fractured shaft		7	1
	Scapula	Left		<Half			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			

	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Humerus	Right	Fused	Distal shaft			
Silvacapra grimmia	Astragalus	Right		Whole		2	1
	Femur	Left	Unfused distal epiphysis	Distal epiphysis			
Tragalaphus scriptus	Cranium			<Half	Knife cut	1	1
Suidae	Incisor			Whole		1	1

Fig. 8.91 Table showing the identified zooarchaeological assemblage from [A4] Musanze IV

The following context [A5] produced the largest zooarchaeological assemblage from Musanze IV (Fig. 8.92). It included seventy-eight unidentified bones; twenty-seven Bovid Size Class 5 specimens, seven with burning, three with knife cut marks and one with chop marks; one Bovid Size Class 4 specimen with chop marks; forty Bovid Size Class 3 specimens, seven with burning, two with knife cut marks and burning and one with gnawing; three Bovid Size Class 2 specimens, one with burning and one with chop marks; seven Bovid Size Class 1 specimens, one with gnawing, and eight rodent, one *Lagomorph* and one bird specimen. Four cattle (*Bos taurus*) specimens, one with knife cut marks and burning, which came from at least two individuals and seven sheep/goat (*Ovis/Capra*) specimens, one with burning and one knife-cut marks, represent the domestic species from this context. Whilst the sheep/goat remains are only from mature individuals, the cattle remains come form both mature and immature individuals. The wild remains identified to species include one elephant (*Loxodonta africana*) un-fused proximal epiphysis of a tibia with chop marks, knife-cut marks and burning; one bushbuck (*Tragelaphus scriptus*) scapula with gnawing and burning, and two gnawed phalanges; two sitatunga (*Tragelaphus spekei*) specimens with burning and gnawing; one rock hyrax (*Procavia capensis*) mandible; one great forest hog (*Hylochoerus meinertzhageni*) mandible with two incisors; and a common duiker (*Silvicapra grimmia*) humerus. Of interest from the wild assemblage from this context is the immature elephant specimen with butchery marks. Similar immature elephant remains occurred in the early deposits from Musanze II and III and the possibility that these remains come from a single individual and were shared amongst the occupant of the various caves persists. The final remains identified were three *Homo sapiens* specimens. Previously, human remains have only been recovered from the upper levels of the excavation units and have been attributed to recent conflicts such as the 1994 genocide. However, a different cause must have contributed to the deposition of these remains because they come from the stratigraphically oldest context that is believed to date from an earlier period in the Late Iron Age occupation of the caves. There were no archaeological features associated with these human finds that would suggest a formal deposition such as a burial and thus it is possible that they relate to an earlier violent event.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Metacarpal		Unfused	Distal	Burnt	26	1
	Metacarpal		Unfused	Distal	Burnt		
	Rib			Fractured shaft			
	Rib			Fractured shaft	Burnt		
	Lumber vertebra			Horizontal Process	Knife cut		
	Cranial vertebra			<Half			
	Lumber Vertebra		Unfused	Epiphysis			
	Rib			Fractured shaft			
	Rib			Proximal			
	Metatarsal			Fractured shaft			
	Tibia	Right		Fractured shaft	Chopped		
	Thoracic vertebra			<Half			
	Metapodial (G1)		Unfused distal	Distal	Burnt		
	Metapodial (G1)		Unfused	Distal epiphysis	Burnt		
	Metapodial			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft	Burnt		
	Metapodial		Fused distal	Distal			
	Orbital	Left		<Half			
	Mandible	Left		<Half			
	Incisor			Whole			
	Rib			Fractured shaft			
	Cervical vertebra		Fused	Half			
	Cervical vertebra		Fused	Half	Knife cut		
	Lumber vertebra			Horizontal process	Burnt		
	Hyoid	Left		<Half	Knife cut		
Bovid size class 4	Orbital	Left		Half		1	1
Bovid size class 3	Scapula	Left		Almost whole	Gnawed	40	3
	Lumber vertebra		Unfused	Almost whole			
	Sacrum		Unfused	Almost whole			
	Cervical vertebra		Unfused	Almost whole			
	Thoracic vertebra			Vertical process			
	Rib			Fractured shaft			

	Rib			Fractured shaft	Knife cut, Burnt		
	Rib			Fractured shaft			
	Radius	Right		Fractured shaft			
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Caudial vertebra			Almost whole			
	Rib			Proximal			
	Pelvis	Left		<Half			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Femur	Left		Fractured shaft	Burnt		
	Femur	Left	Unfused	Distal	Burnt		
	Metapodial			Fractured shaft			
	Rib			Proximal			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Lumber vertebra			Fragment			
	Lumber vertebra			Fragment			
	Thoracic vertebra			Vertical process			
	Humerus	Left	Unfused	Distal epiphysis	Burnt		
	Femur	Left		Fractured shaft			
	Radius		Fused	Proximal, Shaft			
	Tibia		Just fused	Proximal			
	1st Phalanges		Unfused	Proximal	Knife cut, Burnt		
	Cranium			Fragment			
	Cranium			Fragment			
	Rib			Proximal shaft			
	Rib			Fractured shaft			
	Thoracic vertebra			Vertical process			
	Metacarpal		Unfused distal epiphysi s	Almost whole			
Bovid size class 2	Thoracic vertebra			Almost whole		3	1
	Calcaneum			Whole	Burnt		
	Rib			Fractured shaft	Chopped		
Bovid size class 1	Rib			Fractured shaft		7	1
	Rib			Fractured shaft			
	Rib			Proximal			
	Rib			Fractured shaft			

	Tibia	Right		Fractured shaft			
	Humerus	Left	Fused	Distal			
	1st Phalanges		Fused	Whole	Gnawed		
Bos taurus	Tibia	Right	Unfused	Proximal, Shaft	Knife cut, Burnt	4	2
	Pelvis	Right		Fragment			
	Maxilla (G1)	Left	30-42 months	<Half			
	Molar 1 (G1)	Left	30-42 months	Fragment			
	Premolar 4 (G1)	Left	30-42 months	Fragment			
	Premolar 3 (G1)	Left	30-42m	Fragment			
	Premolar 2 (G1)	Left	30-42m	Fragment			
	Premolar 4	Left					
Ovis/Capra	Patella	Left		Whole		7	1
	Patella	Right		Whole			
	Tibia	Right	Fused distal	Distal	Burnt		
	Tibia	Left	Fused distal	Distal	Knife cut, Burnt		
	Femur	Left	Fused	Distal			
	Pelvis	Right		<Half			
	Humerus	Right	Fused	Proximal	Knife cut, Burnt		
Loxidonta africana	Tibia	Left	Unfused proximal epiphysis	Proximal epiphysis	Chopped, Knife cut, Burnt	1	1
Homo sapiens	Tibia	Left	Fused	Almost whole		3	1
	Mandible (G2)	Left		<Half			
	Molar 3 (G2)	Left		Whole			
	Molar 2 (G2)	Left		Whole			
	Molar 1 (G2)	Left		Whole			
	Premolar 4 (G2)	Left		Whole			
	Premolar 3 (G2)	Left		Whole			
	Molar 1	Right		Whole			
Rodent	Tibia	Right	Fused	Whole		8	2
	Sacrum			Whole			
	Pelvis	Left		Half			
	Femur	Right	Fused	Whole			
	Ulna	Left	Fused	Almost Whole			
	Humerus	Right		Fractured shaft			
	Cranium			Fragment			
	Pelvis	Left		>Half			
Bird	Long bone			Fractured shaft		1	1

Lagomorph	Scapula			Fractured shaft		1	1
	Nevicular Cuboid			Whole		1	1
Silvicapra grimmia	Humerus	Left		Distal		1	1
Tragalphus scriptus	Scapula	Right	Fused	Almost whole	Gnawed, Burnt	3	1
	3^{rd} Phalanges		Fused	Whole	Gnawed		1
	1^{st} Phalanges		Fused	Almost whole	Gnawed		
Tragalaphus spekei	Calcaneum	Right	Fused	<Half	Gnawed, Burnt	2	1
	Metapodial		Unfused	Distal epiphysis	Burnt		
Procavia capensis	Maxilla (G3)	Left		<Half		1	1
	Molar 3 (G3)	Left		Whole			
	Molar 2 (G3)	Left		Whole			
	Molar 1 (G3)	Left		Whole			
Cephalophu s	Mandible (G4)	Left		<Half		1	1
	Molar 4 (G4)	Left		Whole			
	Molar 3 (G4)	Left		Whole			
	Molar 2 (G4)	Left		Whole			
Hylochoerus meinertzhag eni	Mandible (G1)			<Half		3	1
	Incisor (G1)			Whole			
	Incisor (G1)			Whole			

Fig. 8.92 Table showing the identified zooarchaeological assemblage from [A5] Musanze IV

Summary

Within the zooarchaeological assemblage identified at Musanze IV a range of butchered wild and domestic specimens were identified to species. This suggests that the cave occupants exploited both hunted and domesticated animal populations during the Late Iron Age. Furthermore, a butchered immature elephant specimen was identified in a stratigraphically similar deposit to those where other immature elephant specimens were found at Musanze II and III. It is suggested here that this may represent the sharing of a single animal amongst the various caves which if true would suggest that these caves were occupied co-currently. Finally, the identification of traumatised human remains from both the earliest and latest contexts at Musanze IV suggests that the latest contexts date to the recent violent episodes in Rwanda's 20^{th} century history but that there were also episodes of violence in the caves at a much earlier date.

8.21 Palaeobotanical Analysis

Soil samples were taken from all the deposits encountered during excavations in Musanze IV. However, only one sample from context [A2] preserved palaeobotanical remains: two charred parenchyma samples (general plant tissue) and one indeterminate fragment. These specimens are of limited interpretative value because they are not identifiable to species and they have been obtained from a deposit believed to date from the relatively recent past for which historical resources exist.

8.22 Other Finds

Small finds were recovered from four of the five contexts excavated in Musanze IV. The earliest deposit [A5] contained three white bone beads and context [A4] contained another white bone bead. Six white bone beads were found alongside an iron knife blade and iron projectile point in context [A3] and context [A2] contained two white bone beads, one blue bead that had been cut at an oblique angle, a fishing hook and two iron projectile points that appear to be small spear heads. The iron finds are of particular interest because they may be evidence of the type of hunting tools and/or weaponry, employed by the cave's occupants. The hook find is also the only evidence of fishing that has been recovered from the caves excavated in the northern study zone.

8.23 Case Study Four: Summary

The excavation results from the Musanze caves identified rich archaeological deposits containing a range of significant archaeological materials. For example, within the roulette-decorated ceramics a fine black burnished ware (Fabric M5) was identified in the later deposits of two of the caves. Furthermore, the zooarchaeological and palaeobotanical remains, alongside other finds such as the billhook blade, knifes, spearheads and arrowhead, suggest that the cave occupants practiced, or enjoyed the results of, a variety of different subsistence activities. However, the predominance of hunted remains suggests that a foraging life-style dominated the subsistence activities. (These results will be contextualised and discussed alongside the other cave results and earlier interpretations of the caves in Chapter 9 section 9.20 onwards).

8.24 Case Study Five: Nguri Cave

Nguri Cave, RPS003, is located on the steep slopes of the Virunga volcanic chain above lakes Ruhondo and Bulera. The cave was identified during survey and no archaeological work is believed to have taken place there previously. The cave entrance is located at southing 01.25.007, easting 029.42.712 and at an elevation of 2224m (Fig 8.93). The cave was selected for excavation because it is situated in a high altitude environment, in contrast to the Musanze caves.

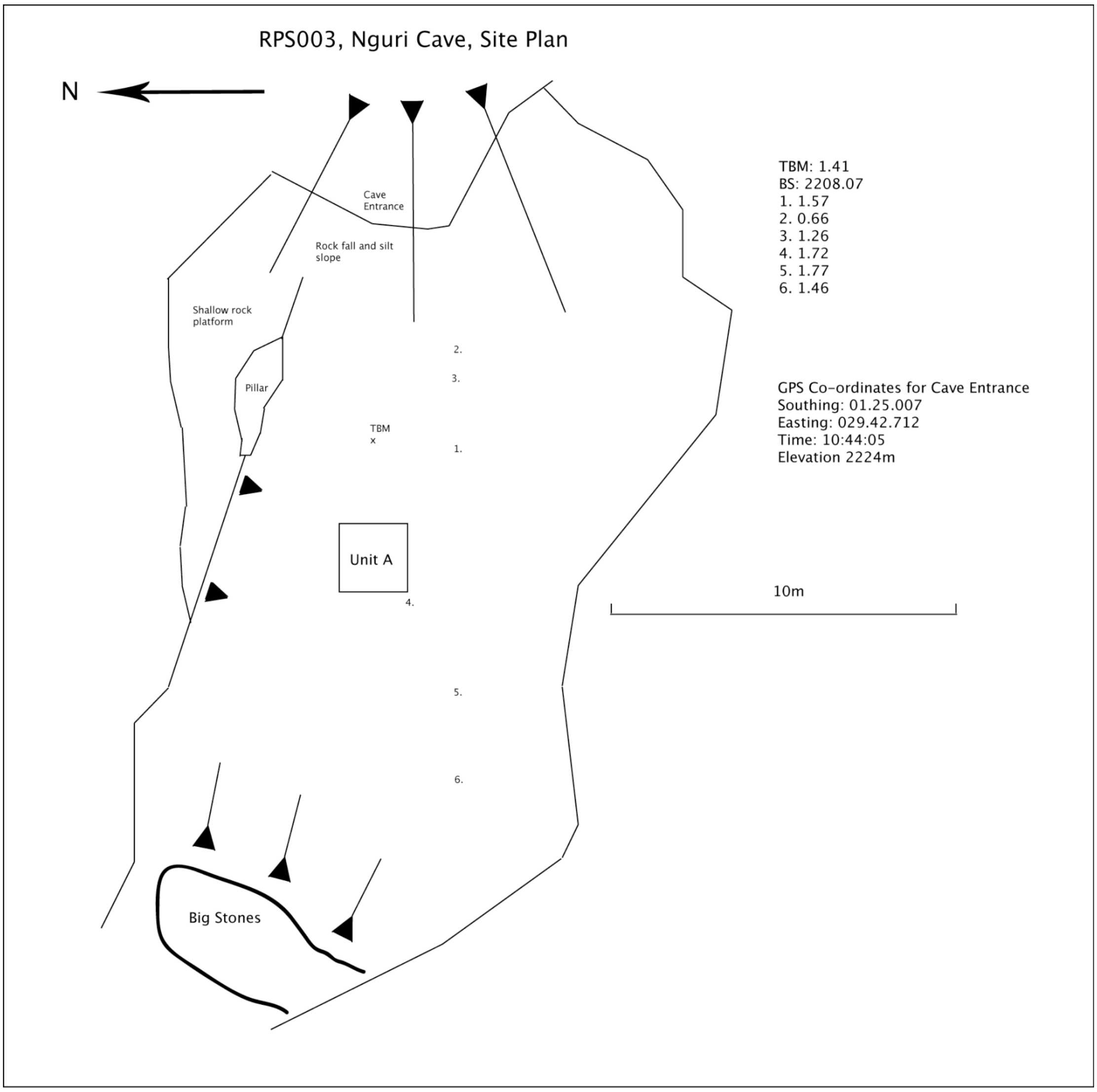

Fig. 8.93 Illustration showing site plan of Nguri Cave, RPS003

In Nguri Cave a 2x2m test excavation unit was excavated to a depth of 1.7m before reaching bedrock (Fig. 8.94). The excavations recovered a large quantity of Late Iron Age ceramics, bone and charcoal along with occasional beads and metal objects. The first deposit [A1] was a greyish brown clayey-silt with frequent pottery and rare bone, and this context sat above [A2] a dark brownish black clayey-silt. Beneath this was a mixed light brown clayey-silt deposit, more compact than the previous layers, with two lenses of white calciferous material [A3]. This context sealed a thin deposit of medium to dark brown clayey-silt between very thin calcareous layers [A4]. Following this was a large deposit [A5] of medium to dark greyish-brown clayey-silt. The final and earliest context [A6], which sat above the bedrock, consisted of a clayey mid-greyish brown clayey-silt, which was distinct from the deposit above due to its greater compaction. All of these deposits contained frequent pottery and occasional bones.

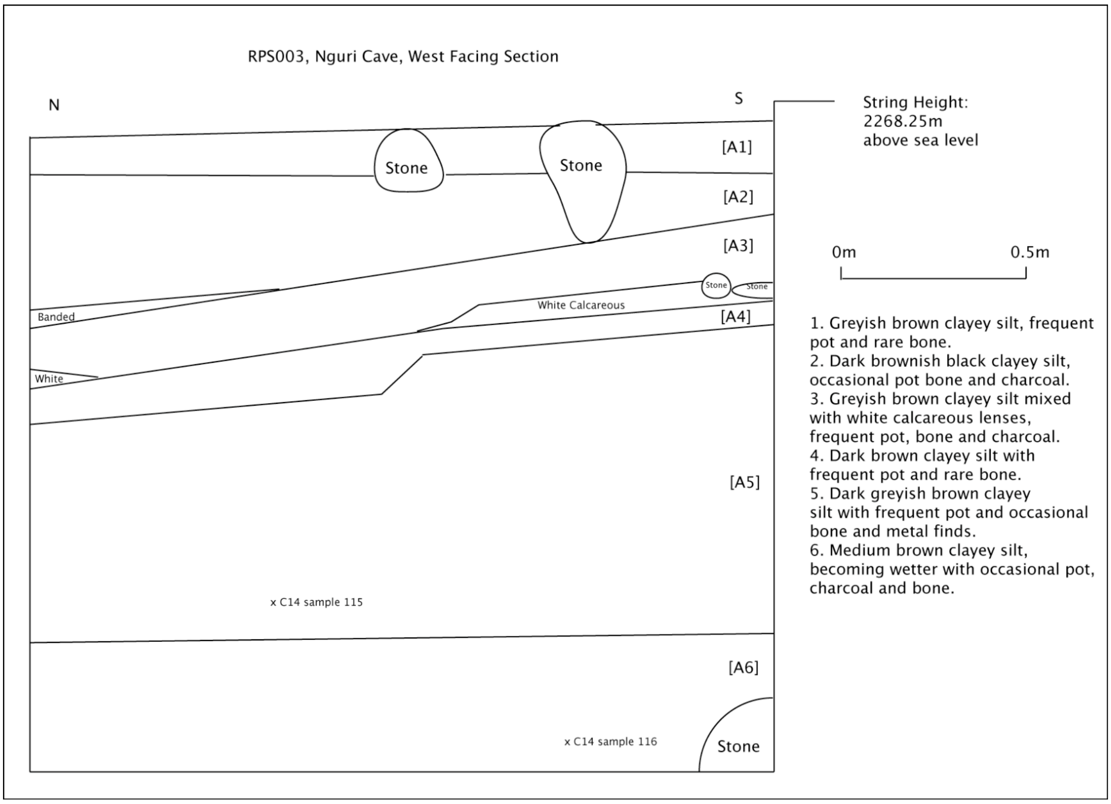

Fig. 8.94 Illustration showing west-facing section of Unit A Nguri Cave

Radiocarbon Sample	Context	Date BP	Calibrated date (2 sigma)
OxA-19523	The base of context [5]	956 ± 26 BP	1042 to 1206 AD

Fig. 8.95 Table showing the successful radiocarbon date from [A5] Nguri Cave

Two radiocarbon dates were sought for the earliest deposits, [A5] and [A6], encountered in Nguri Cave. Unfortunately, only the samples from context [A5] successfully produced a date. The second sample was reported by the laboratory to contain insufficient carbon. The successful date (Fig. 8.95) suggests that human activity within Nguri Cave dates to at least the beginning of the 2nd millennium AD.

A specific aim of the research at Nguri Cave was to explore whether the archaeological assemblage recovered here was comparable to that identified at the Musanze Caves. By comparing these assemblages it is possible to investigate whether the occupants of the Musanze Caves and other caves were part of a wider material culture group or whether they were isolated culturally from one another.

8.25 Ceramic Analysis

Technological Profile

The total ceramic assemblage from Nguri Cave weighed 39.83kg and identified within it were eight fabric groups. These fabrics have been number 3R1 - 3R8 (Fig. 8.96). The 3R prefix relates to the site code RPS003 (the original survey site code for Nguri Cave). Fabrics 3R3 and 3R4 were originally thought to represent separate types, however, it was quickly realised that these were variations within a single fabric type and the results have been combined to create a fabric 3R3/4.

Fabric	Fabric Properties	Decoration	Attribution
3R1	Pinkinsh orange, irregular oxidisation, with frequent inclusions such as poorly sorted volcanic rock (1-10%), sub rounded medium sand grog (1-5%), and quartz and mica sand (2%).	Twisted-string and knotted-strip roulette	Late Iron Age
3R2	Black/brown, sandy textured, unoxidised, with well sorted fine mica (5-10%) inclusions alongside volcanic stone and quartz (1%) inclusions.	None	Unknown
3R3/4	Bluish black, partially oxidised, with occasional poorly sorted mica (1%) and rare grog (<1%).	Twisted-string and knotted-strip roulette	Late Iron Age
3R5	Mixed orange/red/pink, irregularly oxidised, sandy textured, with frequent poorly sorted mica (10%) and rare volcanic (!%) inclusions.	Knotted-strip roulette	Late Iron Age
3R6	Reddish brown, smooth textured, oxidised, with well-sorted fine mica (<5%) inclusions.	Knotted-strip roulette	Late Iron Age
3R7	Black, unoxidised, burnished with very well sorted fine mica (<5%) inclusions.	Twisted-string roulette	Late Iron Age
3R8	Grey, smooth textured, partially oxidised, with poorly sorted grog (<10%), well-sorted fine mica sand (<5%) and quartz (1%) inclusions.	Twisted-string roulette	Late Iron Age

Fig. 8.96 Table showing the fabric properties from Nguri Cave

The total ceramic assemblage excavated from Nguri Cave was dominated by fabrics 3R1 (56%) and 3R3/4 (16.5%), with the remainder made up of 3R2 (6%), 3R5 (6%), 3R6 (4%), 3R7 (1%), 3R8 (4.5%) and miscellaneous (6%). The dominance of fabric 3R1 and 3R3/4 was seen throughout the deposits. In the earliest deposit [6] the assemblage weighed 5.94kg and consisted of 3R1 (68.5%), 3R2 (4.5%), 3R3/4 (9.5%), 3R8 (4%) and miscellaneous (13.5%). The assemblage size increased substantially in the following deposit [5] and weighed 17.5kg, consisting of 3R1 (62.5%), 3R2 (7.5%), 3R3/4 (9.5%), 3R5 (9.5%), 3R6 (4%), 3R8 (2.5%) and miscellaneous (4.5%). A similar grouping of fabrics was identified in context [4] which weighed 3.09kg and consisted of 3R1 (35%), 3R2 (6%), 3R3/4 (32.5%), 3R5 (7.5%), 3R6 (15%), 3R8 (3%) and miscellaneous (1%). Context [3] weighed 8.12kg and contained the largest range of fabrics with the inclusion of fabric 3R7, a black burnished fine ware very similar to fabric M5 identified in the Musanze Caves. The assemblage from context [3] consisted of fabric groups: 3R1 (43.5%), 3R2 (3.5%), 3R3/4 (28.5%), 3R5 (3%), 3R6 (3%), 3R7 (3.5%), 3R8 (5.5%) and miscellaneous (9.5%). The size of the excavated assemblage reduced in the following contexts and fabric 3R7 was not identified again. The second latest context, [2], weighed only 3.1kg and consisted of fabrics 3R1 (40.5%), 3R2 (9.5%), 3R3/4 (19.5%), 3R5 (4.5%), 3R6 (6%) and 3R8 (10%). Finally, in the most recent context [1] the assemblage weighed 26.45kg and consisted of fabrics 3R1 (64%), 3R2 (8%), 3R3/4 (18%), 3R5 (1%), 3R8 (6%) and miscellaneous (3%).

The technological profile of the excavated ceramic assemblage from Nguri Cave demonstrated that whilst a range of fabrics were utilised by the occupants of the cave the choice remained stable throughout the caves occupation with similar fabrics found in each deposit. The only notable exception to this is fabric 3R7, which appears to be related to the black fine burnished ware previously identified in the upper levels of Musanze II and IV.

Morphological Profile

There were one hundred and nine reconstructable vessels identified within the total ceramic assemblage excavated from Nguri Cave. The assemblage was almost entirely made up of jars (90.5%), with only rare bowl types present, including hemispherical bowls (3%) (Fig. 8.97, a), closed bowls (7.5%) (Fig. 8.97, b) and flared bowls (2%). This distribution suggests a ceramic use assemblage more functionally associated with storage and pouring than serving, and this frequency is comparable to that identified in the Musanze Caves. An analysis of the relationship between fabric group and vessel form (Fig. 8.98) shows that the black burnished fine ware, 3R7, which can be compared to the M5 fabric from the Musanze Caves, are all bowls, including three hemispherical and five closed bowl examples.

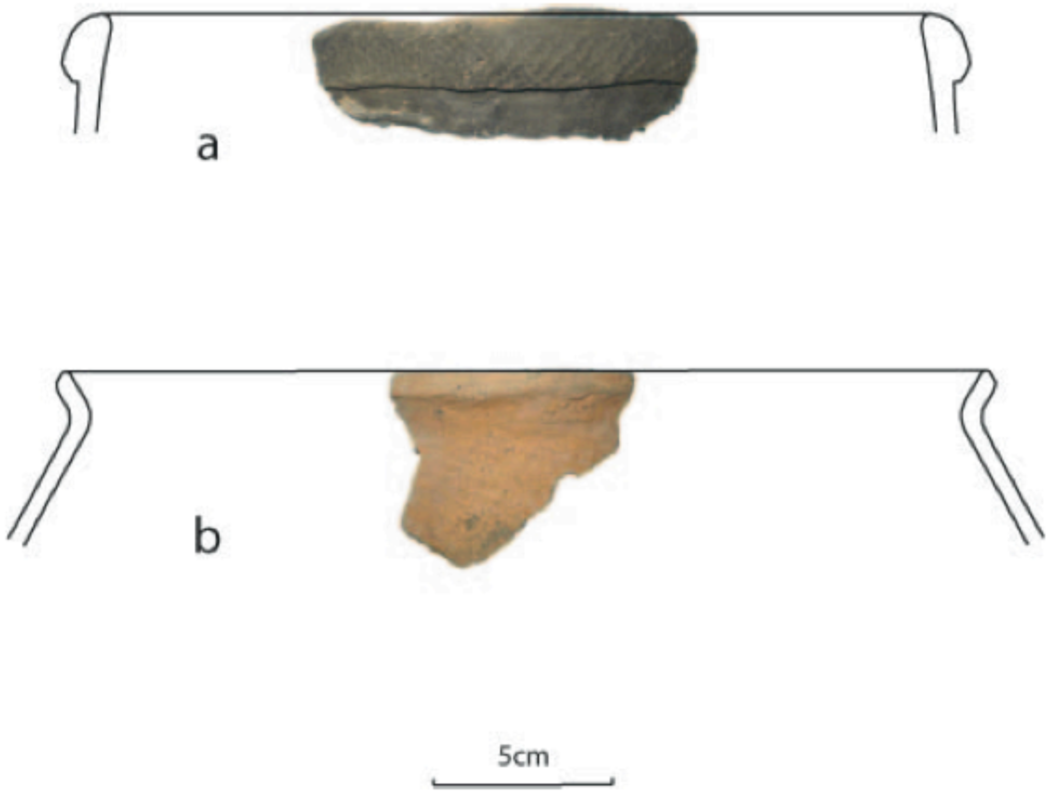

Fig. 8.97 Illustrated photograph showing bowl forms from Nguri Cave, including an open bowl (a) and a closed bowl (b)

	3R1	3R2	3R3/4	3R5	3R6	3R7	3R8
Globular everted rim jars	60.5%	10.5%	21%	2.5%	2.5%	0%	0%
Straight necked jars	60.5%	7%	22.5%	0%	8.5%	0%	1.5%
Hemispherical bowls	25%	0%	0%	0%	0%	75%	0%
Closed bowls	25%	0%	12.5%	0%	0%	62.5%	0%
Flared mouth bowls	100%	0%	0%	0%	0%	0%	0%

Fig. 8.98 Table showing the distribution of vessel form relative to fabric group from Nguri Cave

A range of simple rim forms were identified within the reconstructable assemblage and these included squared rims (55%), rounded rims (25%), thickened rims (9.5%), tapered rims (5.5%), folded rims (3%) and beaded rims (2%) (Fig. 8.99). With the exception of the two beaded rim examples, the same range of rim types was identified within the Musanze Caves. The rim types associated with fabric 3R7 were confined to rounded or tapered rims. The distribution of rim types relative to vessel form (Fig. 8.95) shows a limited correlation between hemispherical bowls and squared rims and flared mouth bowls and beaded rims. However, the other better-represented vessel forms display a range of rim types.

	Squared	Rounded	Tapered	Thickened	Beaded	Folded
Globular everted rim jar	52.5%	34%	2.5%	4.5%	0%	4.5%
Straight necked jar	60.5%	24.5%	0%	13%	0%	2%
Hemispherical bowl	100%	0%	0%	0%	0%	0%
Closed Bowl	22%	11%	56%	11%	0%	0%
Flared mouth bowl	0%	0%	0%	0%	100%	0%

Fig. 8.99 Table showing the frequency of rim types relative to vessel form from Nguri Cave

There were three types of decoration identified within the reconstructable assemblage from Nguri Cave, including a single fingernail impressed vessel from the earliest context [A6], thirty-three vessels with knotted-strip roulette decoration, recovered from the three most recent contexts [A1], [A2] and [A3], and seventy one vessels with twisted-string roulette decorated vessels recovered from throughout the excavated deposits. Within the total excavated assemblage only one other decorative type was represented, a single punctate decorated sherd from context [A5], the rest of the total assemblage included one-hundred and thirty-two knotted-strip roulette decorated sherds, found in all but the two earliest contexts [A5] and [A6], and four hundred and ten twisted-string roulette decorated sherds from throughout the sequence.

	Left	Right	Horizontal
Globular everted rim jars	14	1	0
Straight necked jars	35	11	1
Hemispherical bowls	2	0	4
Closed bowls	1	2	5
Flared mouths	0	0	0

Fig. 8.100 Table showing the distribution of rouletting angles for twisted-string roulette decorated vessels from Nguri Cave

An analysis of the direction of twisted-sting roulette decoration application suggests a preference for roulette direction, not only for the fine black burnished ware, as at the Musanze Caves, but also for the jars (Fig. 8.100). The table shows a clear preference for left rouletting in jars with forty-nine left diagonal samples and only eleven right-sided examples. It is also notable that nine of the ten vessels with horizontal rouletting are from the fine black burnished ware, fabric 3R7, and there are no other types of rouletting that apply to vessels made from this fabric (Fig 8.101). This is very similar to the fine black burnished ware from the Musanze Caves where rouletting was commonly horizontal, or in a variety of directions.

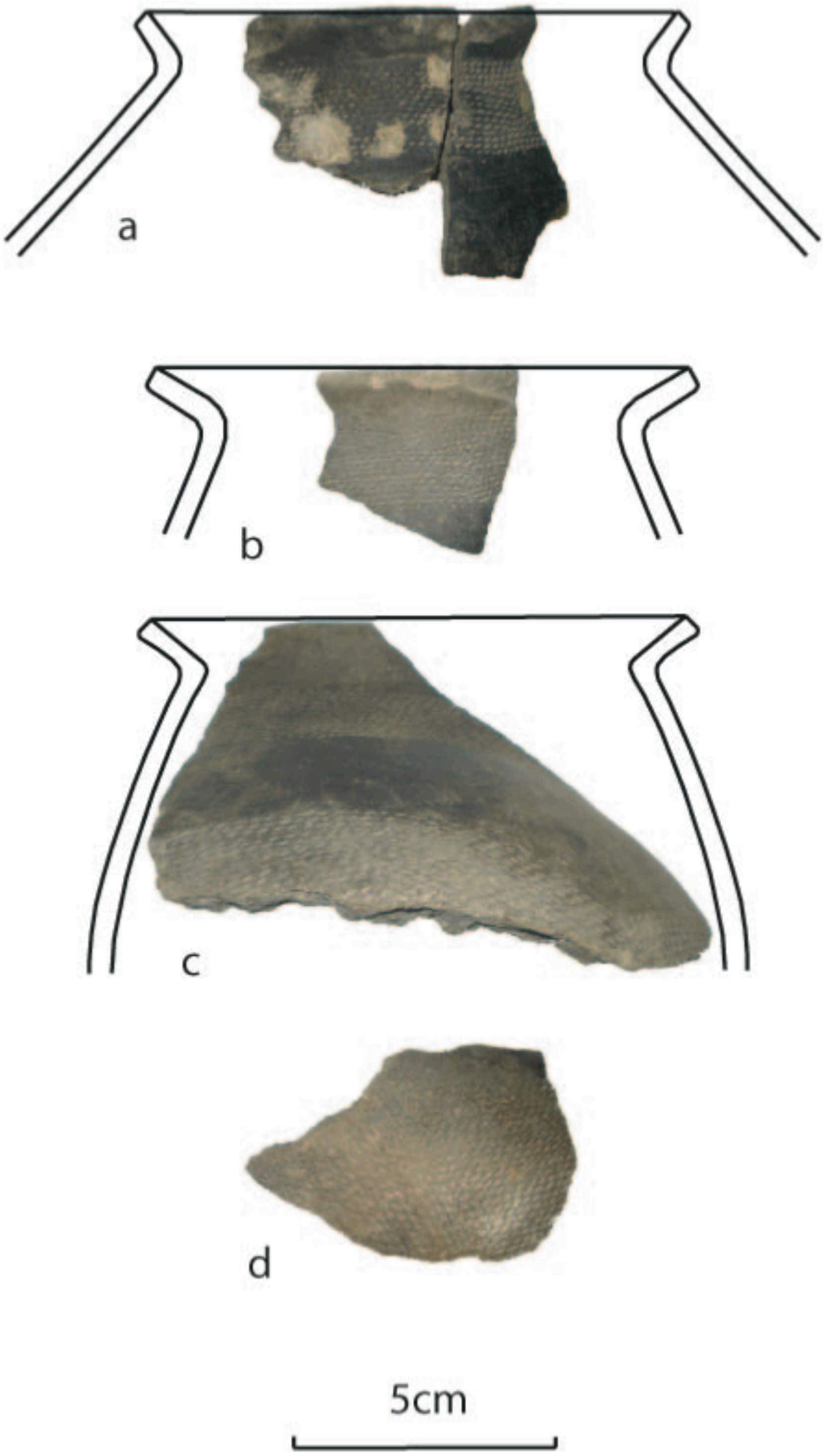

Fig. 8.101 Illustrated photograph showing fabric 3R7, black burnished ware, from Nguri Cave

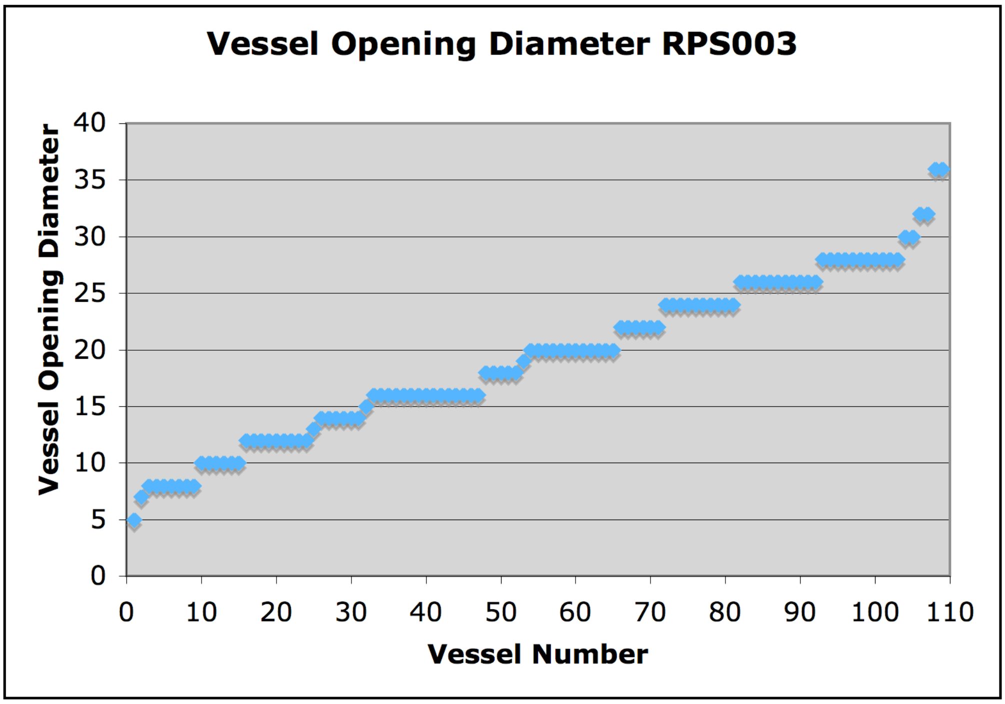

Fig. 8.102 Graph showing reconstructable vessel opening diameters from Nguri Cave (RPS003)

The reconstructable assemblage from Nguri Cave produced one hundred and nine sufficiently complete vessels for a vessel-opening diameter to be estimated (Fig. 8.102). The results of this analysis were very similar to the results from the Musanze caves and record a broad vessel opening range from 5 to 36cm, although there are few above 27cm. There is no identified relationship between the vessel form and the vessel opening.

The frequency with which each of the four decorative positions was utilised relative to vessel form (Fig. 8.103) is broadly similar to that identified in the Musanze caves. Once again all four zones were employed in jars but internal rouletting was rare on the bowls and was totally absent on the hemispherical bowls. However, in subtle contrast to the Musanze assemblage there was a higher incidence of internal decoration on the jars and the frequency was significantly higher in relation to the globular everted rim jars at Nguri Cave. Decoration was totally absent from the lip and internal areas of all the 3R7 vessels and was confined to the neck and/or body in a similar fashion to the M5 fabric vessels from the Musanze Caves.

	Lip	Neck	Body	Internal
Globular everted neck jar	13	14	14	32
Straight necked jar	42	37	11	19
Hemispherical bowl	2	3	5	0
Closed bowl	4	7	6	0
Flared mouth bowl	1	0	0	1

Fig. 8.103 Table showing the frequency of decorated zones relative to vessel forms at Nguri Cave

The only surface treatment identified within the excavated assemblage from Nguri Cave was the burnishing applied to all the 3R7 vessels. This was consistent with the related fabric M5 from the Musanze Caves, which were also burnished. Four handles were identified within the excavated assemblage, one from context [A5] that was made from a single wide vertical band, two from context [A3] both made from six narrow vertical bands and one from context [A2] made from a single vertical clay band. Whilst the handles continue to vary in the number of clay bands, they are broadly similar in their form and decoration, and are comparable to those recovered from the Musanze caves.

Ten bases were identified within the excavated ceramic assemblage from Nguri cave. In the earliest context [A6] there were two flat bases with raised domes on the interior, two thickened rounded bases, and three conical bases. In context [A5] there was one simple flat base and two thickened rounded bases, and there was another example of this latter type in context [A3]. Whilst the frequency of bases recovered was substantially higher at Nguri Cave than in the Musanze Caves the assemblage was still too small to be of much interpretative value.

Summary

The ceramic assemblage excavated from Nguri Cave is broadly similar to that recovered from the Musanze Caves. There was a higher frequency of jars than bowls, the ceramics were mostly decorated with twisted-string roulette decoration, similar handle forms appear and a range of bases was identified. There was also the identification of fabric 3R7 that is both technologically, morphologically and stratigraphically comparable to fabric M5 from the Musanze Caves. There was a higher frequency of knotted-strip roulette decorated ceramics from Nguri Cave and subtle shifts in decorative application, but otherwise the assemblages are very similar and based on the evidence presented here are believed to be related.

8.26 Zooarchaeological Analysis

There were no zooarchaeological remains recovered from the most recent context [A1] encountered in Nguri Cave. However, *bovidae* remains were recovered from context [A2]. This context contained twenty-seven unidentified bone fragments, eleven Bovid Size Class 5 specimens, three Bovid Size Class 4 specimens, eleven Bovid Size Class 3 specimens, and one Bovid Size Class 1 specimen. The domestic remains included seven cattle (*Bos taurus*) specimens, three with chop marks, all of which had reached maturity before death (Fig. 8.104).

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Rib			Fractured shaft		11	2
	Patella			Whole			
	Humerus	Right		Fractured shaft			
	Thoracic vertebra			Vertical process			
	Thoracic vertebra			Vertical process			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Lumber vertebra			Fragment			
	Humerus	Right		Fractured shaft			
Bovid size class 4	Tibia	Left	Fused proximal	Fragment		3	2
	Thoracic vertebra		Unfused cranial and caudial	<Half			
	Tibia	Left	Fused proximal	Fragment			
Bovid Size Class 3	Pelvis			Fragment		11	1
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal, Shaft			
	Rib			Fractured shaft			
	Thoracic vertebra			Vertical process			
	Lumber vertebra			Vertical process			
	Metatarsal			Fractured shaft			
	Orbital	Right		Fragment			
	Orbital	Left		Fragment			
Bovid Size Class 1	Rib			Proximal, Shaft		1	1
Bos taurus	Thoracic vertebra			Vertical process	Chopped	7	1
	Metatarsal		Fused proximal	Proximal, Shaft			

	3rd Phalanges			Whole			
	3rd Phalanges			Whole			
	Sacrum			<Half	Knife cut		
	Sacrum			<Half	Knife cut		
	Lower premolar 3/4			Whole			

Fig. 8.104 Table showing the identified zooarchaeological assemblage from [A2] Nguri Cave

The zooarchaeological assemblage increased significantly in context [A3] and included: seven unidentified bone fragments; twenty-four Bovid Size Class 5 specimens, three with knife-cut marks and three with burning, two with both knife-cut marks and burning and one with knife-cut marks and burning; five Bovid Size Class 4 specimens, one with chop marks and gnawing, and one with knife-cut marks; twenty-nine Bovid Size Class 3 specimens, nine with burning, two with knife cut marks, one with knife-cut marks and burning and two that have evidence of working, including two ribs with circular perforations at either end; one Bovid Size Class 2 specimen with gnawing; one Bovid Size Class 1 specimen; one rodent specimen and ten bird specimens. Twelve cattle (*Bos taurus*) specimens, from at least two individuals, represent the domestic assemblage from this deposit. Three of these specimens had knife-cut marks, three were burnt and one had been gnawed. The fusion and dental evidence for these specimens suggests that elements from both immature and mature individuals are present. The only other specimen in this deposit was a single duiker (*Cephalophus*) tibia with knife cut marks (Fig. 8.105).

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid Size Class 5	Metapodial		Unfused distal epiphyses	Distal epiphyses		24	2
	Radius/Ulna	Left	Fused	Fractured shaft			
	Pelvis			Fragment			
	Pelvis			Fragment			
	Atlas			Fragment			
	1st Phalanges			Fragment	Knife cut, Burnt		
	Radius/Ulna	Left	Fused	Fractured shaft			
	Rib			Fractured shaft	Knife cut, Chopped		
	Radius	Right		Fractured shaft	Burnt		
	Phalanges			Fragment			
	1st Phalanges			Fragment			
	Atlas			Fragment			
	Rib			Proximal shaft			
	Rib			Fractured shaft			
	Rib			Fractured			

				shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft	Knife cut		
	Lumber vertebra			Horizontal process	Knife cut		
	Cranial vertebra			<Half	Burnt		
	Cranial vertebra		Unfused cranial and caudial	<Half	Burnt		
	Axis			<Half	Knife cut		
	Axis		Unfused cranial and caudial	Fragment	Knife cut, Burnt		
	Cranial vertebra			<Half	Burnt		
	Orbital	Left		<Half			
Bovid Size Class 4	Radius			Fractured shaft	Chopped, Gnawed	5	2
	Mandible	Right		Fragment	Knife cut		
	Mandible	Right		Fragment			
	Mandible	Left		Fragment			
	Mandible	Left		Fragment			
Bovid Size Class 3	Thoracic vertebra			Fragment	Burnt	29	2
	Thoracic vertebra			Vertical process			
	Rib			Proximal, Shaft	Knife cut		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Lumber vertebra			Horizontal process	Knife cut		
	Cranial vertebra			Fragment	Knife cut, Burnt		
	Lumber vertebra			Fragment	Burnt		
	Rib			Shaft	Burnt		
	Cranium			Fragment			

	Cranium			Fragment			
	Cranium			Fragment			
	Mandible	Left		Fragment			
	Mandible	Left		<Half			
	Mandible	Right		<Half	Burnt		
	Hyoid	Left		Almost whole			
	Mandible (G1)	Right		Fragment			
	Mandible (G1)	Right		Whole			
	Upper molar 3	Left		Whole			
Bovid Size Class 2	Metatarsal			Distal	Gnawed	1	1
Bovid Size Class 1	Orbital	Left		<Half		1	1
Bos taurus	1st Phalanges		Fused	Whole	Knife cut	12	2
	3rd Phalanges			Fragment			
	3rd Phalanges			Fragment			
	Carpal 23			Whole			
	Astragalus	Right		Whole	Knife cut		
	Astragalus	Left		>Half	Knife cut, Burnt		
	3rd Phalanges			Fragment	Burnt		
	3rd Phalanges			Almost whole	Burnt, Gnawed		
	Femur	Right	Unfused proximal	Proximal			
	Maxilla (G2)	Left	0-6 months	<Half			
	Deciduous 4 (G2)	Left	0-6 months	Whole			
	Deciduous 3 (G2)	Left	0-6 months	Whole			
	Deciduous 2 (G2)	Left	0-6 months	Whole			
	Upper Molar 2	Right		Almost whole			
	Lower premolar 3	Right		Almost whole			
Bird	Long bone			Fractured shaft		10	2
	Femur	Right		Fractured shaft			
	Scapula	Right		<Half			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Radius	Right	Fused distal	Distal shaft			
	Radius	Right	Fused proximal	Proximal shaft			
	Radius	Left	Fused proximal	Proximal shaft			
	Tibia	Left		Fractured shaft			

Cephalophus	Tibia	Right	Fused	Distal shaft	Knife cut	1	1
Rodent	Mandible	Left		Fragment		1	1

Fig. 8.105 Table showing the identified zooarchaeological assemblage from [A3] Nguri Cave

There were no identified zooarchaeological samples recovered from context [A4] at Nguri Cave and the zooarchaeological assemblage from the following context [A5] was also small and consisted of only seven unidentified bone fragments, one Bovid Size Class 5 specimen, eleven Bovid Size Class 3 specimens, two with chop marks, three with burning and one gnawed, one Bovid Size Class 2 specimen, three rodent specimens and two bird specimens (Fig. 8.106). The only specimen identified to species in context [A5] was one cattle (*Bos taurus*) humerus with knife-cut marks.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	2nd Phalanges		Unfused proximal	Whole		1	1
Bovid size class 3	Thoracic vertebra			Vertical process		11	1
	Rib			Fractured shaft	Chopped		
	Rib			Fractured shaft	Chopped		
	Femur	Left	Unfused proximal	Fractured shaft			
	Calcaneum	Right	Fused	Whole	Gnawed, Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft	Burnt		
	Cranium			Fragment			
	Cranium			Fragment			
Bovid Size Class 2	Metatarsal			Fractured shaft		1	1
Bos taurus	Humerus	Right	Fused distal	Distal	Knife cut	1	1
Rodent	Radius	Left		Fragment		3	1
	Pelvis	Right		Half			
	Maxilla	Left		Almost whole			
Bird	Long bone			Fractured shaft		2	1
	Long bone			Fractured shaft			

Fig. 8.106 Table showing the identified zooarchaeological assemblage from [A5] Nguri Cave

The earliest context [A6] contained a relatively large zooarchaeological assemblage, including: eleven Bovid Size Class 5 specimens, four with knife-cut marks, and one with burning; three Bovid Size Class 4 specimens, one with burning; thirty-four Bovid Size Class 3 specimens, two with knife-cut marks and seven with burning; one Bovid Size Class 2 specimen with gnawing; five Bovid Size Class 1 specimens; three bird specimens; three *Lagomorph* specimens and nine rodent specimens. The domestic assemblage was composed of one cattle (*Bos taurus*) specimen, six sheep/goat (*Ovis/Capra*) specimens, and two chicken (*Gallus gallus*) specimens, originating from at least two individuals, one with knife-cut marks and one with burning (Fig. 8.107). The cattle remains come from an immature individual, aged 0-6 months, and the sheep/goat remains are from both immature and mature individuals. The identified wild assemblage included two duiker (*Cephalophus*) specimens, one kob (*Kobus kob*) first phalange, one great forest hog (*Hylochoerus meinertzhageni*) radius, one common duiker (*Silvacapra grimmia*) burnt third phalange and one bushbuck (*Tragelaphus scriptus*) second phalange.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid Size Class 5	Humerus	Left		Fractured shaft	Knife cut	11	2
	Rib			Fractured shaft	Knife cut		
	Rib			Fractured shaft	Burnt		
	Thoracic vertebra			Vertical process			
	Radius/Ulna	Right	Fused	Fractured shaft			
	Radius/Ulna	Right	Fused	Fractured shaft			
	Rib		Immature	Fractured shaft			
	Pelvis			Fragment	Knife cut		
	Patella			Almost whole	Knife cut		
	Thoracic vertebra			Fragment			
	Pelvis			Fragment			
Bovid Size Class 4	Scapula			Fragment	Burnt	3	1
	Femur		Unfused	Almost whole			
	Lateral maleolus			Whole			
Bovid Size Class 3	Pelvis			Fragment		34	2
	Rib			Fractured shaft	Knife cut		
	Rib			Fractured shaft	Knife cut		
	Lumber vertebra			Horizontal process			
	Cranial			<Half			

	vertebra						
	Cranial vertebra			<Half			
	Thoracic vertebra			<Half			
	2nd Phalanges		Fused	>Half			
	Thoracic vertebra			Fragment			
	3rd Phalanges			Almost whole			
	Radius	Right		Fractured shaft			
	Rib			Fractured shaft			
	Pelvis			Fragment			
	Rib			Fractured shaft	Burnt		
	Rib			Proximal shaft			
	Rib			Proximal shaft			
	Rib			Fractured shaft			
	Lumber vertebra			Horizontal process			
	Rib			Fractured shaft			
	Scapula			Fragment	Burnt		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal, Shaft			
	Rib			Proximal, Shaft			
	Thoracic vertebra			Vertical process	Burnt		
	Ulna	Left	Unfused	Fractured shaft			
	Ulna	Left	Unfused	Fractured shaft			
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft			
	Lumber vertebra			Vertical process			
	Cranium			Fragment			
Bovid Size Class 2	Metacarpal		Fused proximal	Proximal	Gnawed	2	1
	Orbital	Left		Fragment			
Bovid Size Class 1	Scapula			Fragment		4	1
	Femur	Left		Fractured shaft			
	Rib			Fractured			

				shaft			
	Rib			Fractured shaft			
	Tibia	Right	Unfused	Proximal epiphyses			
Bos taurus	Mandible (G1)	Left	0-6 months	<Half		1	1
	Deciduous 4 (G1)	Left	0-6 months	Whole			
	Deciduous 3 (G1)	Left	0-6 months	Whole			
	Deciduous 2 (G1)	Left	0-6 months	Whole			
Ovis/Capra	Tibia	Left	Just fused distal	Almost whole		6	2
	1st Phalanges		Just fusing	Whole	Knife cut		
	Calcaneum	Left	Fused	Whole			
	Femur	Right	Just fusing	Distal, Shaft			
	Mandible (G2)	Right		Half	Burnt		
	Molar 3 (G2)	Right		Whole	Burnt		
	Molar 2 (G2)	Right		Whole	Burnt		
	Molar 1 (G2)	Right		Whole	Burnt		
	Premolar 4(G2)	Right		Whole	Burnt		
	Premolar 3 (G2)	Right		Whole	Burnt		
	Premolar 2 (G2)	Right		Whole	Burnt		
	Maxilla (G3)	Left	Immature	<Half			
	Molar 2 (G3)	Left	Immature	Whole			
	Molar 1 (G3)	Left	Immature	Whole			
	Deciduous 4 (G3)	Left	Immature	Whole			
Rodent	Rib			Whole		9	3
	Scapula			Fragment			
	Rib			Fractured shaft			
	Femur	Right		Almost whole			
	Femur	Right		Whole			
	Scapula			Fragment			
	Rib			Fractured shaft			
	Femur	Left		Almost whole			
	Femur	Right		Whole			
Gallus gallus	Tibia Tarsus	Right	Fused	Whole		2	2
	Tibia Tarsus	Right	Fused	Whole			
Lagomorph	Humerus	Left		Fractured shaft		3	1
	Pelvis	Left	Fragment				
	Sacrum			Fragment			

Bird	Femur	Right		Fractured shaft		1	2
	Femur	Right	Fused proximal	Proximal, Shaft			
	Long bone			Fractured shaft			
Cephalophus	3rd Phalanges			Whole		2	1
	Astragalus	Left		Whole			
Kobus kob	1st Phalanges			Whole		1	1
Hylochoerus meinertzhageni	Radius	Left	Fused	Proximal		1	1
Silvacapra grimmia	3rd Phalanges		Fused	Whole	Burnt	1	1
Tragelaphus scriptus	2nd Phalanges		Fused	Whole		1	1

Fig. 8.107 Table showing the identified zooarchaeological assemblage from [A6] Nguri Cave

Summary

Whilst the zooarchaeological assemblage from Nguri Cave is relatively small compared to the assemblages recovered from the Musanze Caves, it is similar in composition. Throughout the deposits butchered wild species were identified alongside butchered domestic ones. The assemblage also continues to suggest that, based on the varied age at death estimates for the individuals represented in the assemblage, the occupants of these caves had limited access to meat and made use of all available resources as and when they appeared.

8.27 Palaeobotanical Analysis

Palaeobotanical samples were taken from every archaeological deposit encountered during test excavations in Nguri Cave. The identified palaeobotanical remains included three charred finger millet (*Eleusine coracana*) seeds, one parenchyma (plant tissue) and one indeterminate seed fragment from context [A3], two charred finger millet seeds from context [A4] and three charred finger millet seeds, two charred legume (*Lablab*) seeds and one fragment of a large charred fruit seed from context [A5]. These results are consistent with the findings from the Musanze Caves where finger millet remains were also recovered and importantly they also demonstrate the presence of wild plant use by the cave occupants by the presence of legumes and fruits.

8.28 Other Finds

There were no small finds recovered from the earliest context [A6] at Nguri Cave. However, quartz flakes and two iron projectile points (Fig. 8.108) were recovered from the radiocarbon-dated deposit [A5] above, alongside a worked hippo tusk (Fig. 8.109). Quartz flakes were also recovered from the following context [A4] alongside a pounding stone. The greatest range of small finds was recovered from context [A3] and included a clay 'pendant' in the form of a large oblong object with a perforation that may have been made from unfired clay (Fig. 8.110), an almost complete iron bracelet (Fig. 8.111), a worked bone pendant (Fig. 8.112), a small piece of iron that may be from a broken blade and three white bone beads. The only other small find came from context [A2] and was another pounding stone.

Fig. 8.108 Photograph showing arrowhead from Nguri Cave

Fig. 8.109 Photograph showing a worked hippo tusk from Nguri cave

Fig. 8.110 Photograph showing clay 'pendant' from Nguri Cave

Fig. 8.111 Photograph showing iron bracelet from Nguri Cave

Fig. 8.112 Photograph showing worked bone from Nguri Cave

8.29 Summary

The excavations at Nguri Cave, RPS003, identified a range of archaeological materials and produced an early 2^{nd} millennium AD for the start of the cave's occupation. The finds were consistent with those from the Musanze Caves, including a variety of domestic and wild zooarchaeological and palaeobotanical remains. However, whilst quartz flakes were found at Nguri they have not been identified in any of the other cave assemblages. Unfortunately due to a lack of comparative material, the difficulty of quartz analysis and the small size of this assemblage the significance of these lithics is not known. Within the ceramic assemblage the most significant find was the identification of fabric 3R7, fine black burnished ware, which is technologically, morphologically and stratigraphically very similar to fabric M5 from the Musanze Caves.

8.30 Case Study Six: Mweru Cave

Mweru Cave, RPS015, is a small cave site that is located immediately above site RPS014, to the north of the large Mweru rock outcrop. The entrance to the cave is located at southing 01.24.243, easting 029.45.482 and elevation 1904m (Fig. 8.113). The cave was selected for excavation due to its proximity to RPS014 and the lakeshore, and because of its size, which is in direct contrast to the previous large cave sites, which were located away from the lakes to the north and west. This strategy was employed in order to maximise the potential for identifying possible variation between the caves.

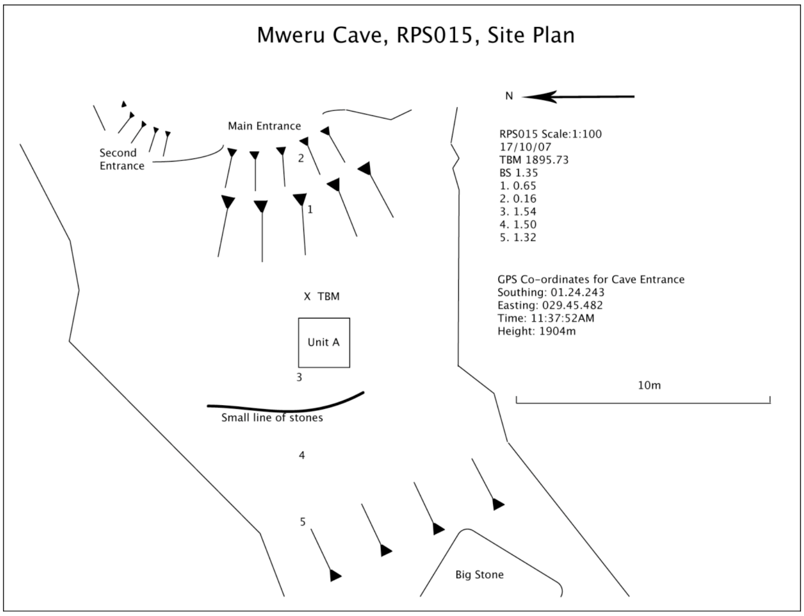

Fig. 8.113 Illustration showing site plan of Mweru Cave

A 2x2m test unit was excavated in the centre of Mweru Cave to a depth of 1.9m (Fig. 8.114). The most recent context [A1] was a soft mid-greyish-brown clayey-silt with rare pot and bone. Context [A2] was more-compact clay that sat above a loose mid-greyish-brown clayey-silt [A3] with occasional pot and bone above a thin but compact layer of white calcareous material. This layer sealed a soft mid-greyish-brown clayey-silt [A4] beneath which sat on top of a darker greyish brown deposit of clayey-silt [A5]. These sat on top of a burnt compact floor of white calcareous material and charcoal [A6]. Beneath which, was a light brown clayey silt [A7] above a large blackish brown sterile deposit of clayey-silt [A8] above bedrock.

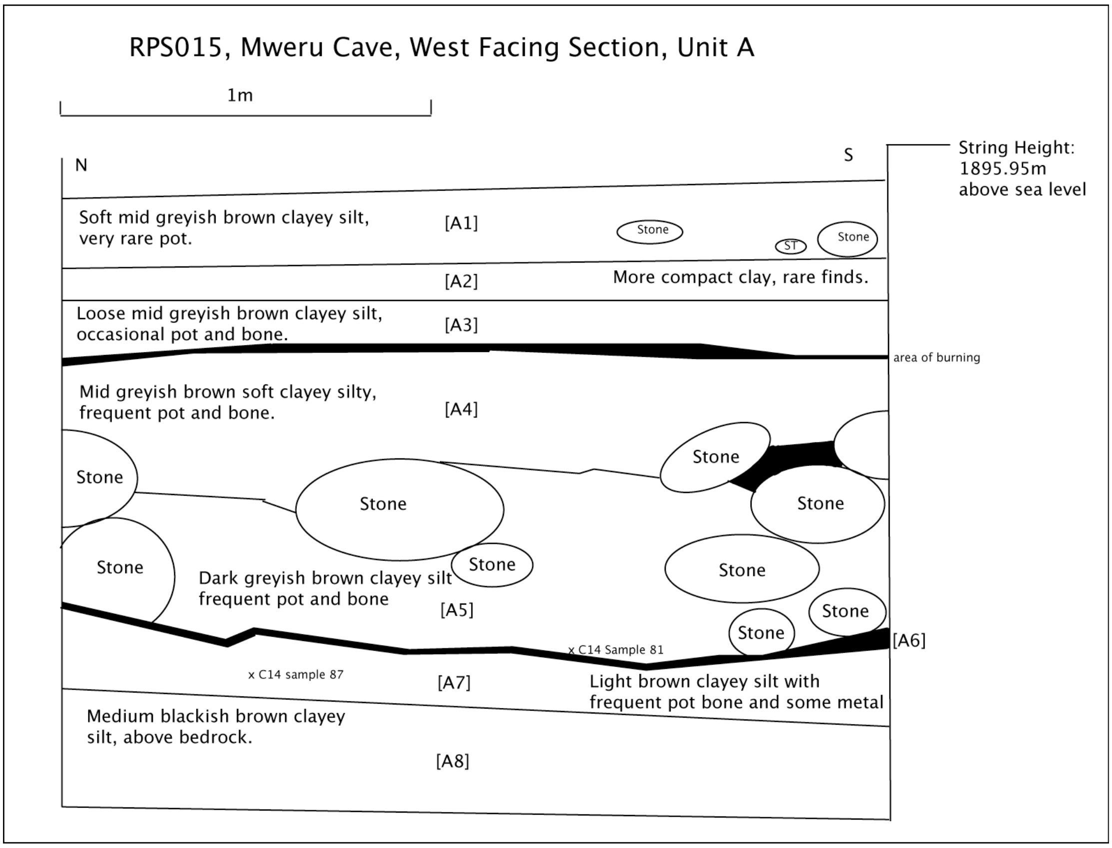

Fig. 8.114 Illustrations showing west-facing section from Unit A, Mweru Cave

Radiocarbon Sample	Context	Date BP	Date 2 Sigma
OxA-19524	Early burnt floor [A6]	955 ± 26 BP	1041 – 1202 AD
OxA-19811	Earliest archaeological deposit [A7]	940 ± 26 BP	1045 – 1214 AD

Fig. 8.115 Table showing the radiocarbon samples from contexts [A5] and [A6] at Mweru Cave

Two charcoal samples were sent for radiocarbon dating from Mweru Cave, these came from contexts [A6] and [A7] respectively (Fig. 8.115). These samples both returned dates that place the earliest occupation deposits at the beginning of the 2nd

millennium AD. This is entirely consistent with the Late Iron Age roulette decorated ceramics that were found throughout the deposits in these caves and with the radiocarbon dating evidence from Nguri Cave and the Musanze Caves.

8.31 Ceramic Analysis

The specific research aims associated with the analysis of the ceramic assemblage were the same as those from Nguri Cave (e.g. to compare the results with those from the Musanze caves in order to establish if there is a material culture relationship between the past occupants of the caves in the north of Rwanda).

Technological Profile

The total ceramic assemblage recovered during excavations at Mweru Cave weighed 21.8kg and there were eight fabrics identified within it (Fig. 8.116). These fabrics have been numbered 15R1 – 15R8 and this code relates to the site code for Mweru cave, RPS015.

Fabric	Fabric properties	Decoration	Attribution
15R1	Orange with shades of pink and grey, irregularly oxidised, with <5% poorly sorted quartz volcanic stone inclusions and a sub-rounded red stone inclusion (5-10%).	Roulette	Late Iron Age
15R2	Black, unoxidised smooth, very rare fine inclusions	Roulette	Late Iron Age
15R3	Black to reddish, unoxidised, with 5-10% well sorted fine mica inclusions.	None	Unknown
15R4	Purple to black, oxidised, smooth texture, with <1% poorly sorted red stone inclusions.	Twisted-string roulette decoration	Late Iron Age
15R5	Black, burnished, unoxidised with <1% well sorted fine mica inclusions.	Twisted-string roulette	Late Iron Age
15R6	Grey to brown, smooth slipped, irregular oxidised, with <1% fine mica and <1% poorly sorted quartz inclusions.	None	Unknown
15R7	Orangey pink, oxidised, very rare inclusions and very smooth texture.	Roulette	Late Iron Age
15R8	Orange, sandy textured, irregular oxidisation, with 10% poorly sorted mica inclusions.	Roulette	Late Iron Age

Fig. 8.116 Table showing the physical properties of the fabric groups identified at Mweru Cave, RPS015

Unlike the assemblages recovered from the other cave sites, a single fabric type did not overwhelmingly dominate the assemblage. The total excavated assemblage consisted of fabric 15R1 (25.5%), 15R2 (19.5%), 15R3 (3.5%), 15R4 (18%), 15R5 (0.5%), 15R6 (6.5%), 15R7 (12%), 15R8 (1.5%) and miscellaneous (13%). With the exception of fabric 15R5 and 15R8 that are confined to specific deposits, all the fabrics occur throughout the sequence. Fabric 15R5 is particularly important because it is the same as fabric 3R7 from Nguri Cave and M5 from the Musanze Caves. It is comparable both technologically and stratigraphically, being limited to the later deposits [A1], [A2] and [A3] at Nguri Cave as at Musanze and Nguri Caves.

Morphological Profile

Thirty-two reconstructable vessels were identified within the total ceramic assemblage excavated from Mweru Cave. As in the other cave assemblages jars dominate (71%) (Fig. 8.117, b) with bowls making up the remainder (29%) (Fig. 8.118). Although few in number, it is significant that fabric 15R5 is restricted to closed bowls. The related fabric groups M5 and 3R7 were also restricted to bowls and most commonly closed bowls.

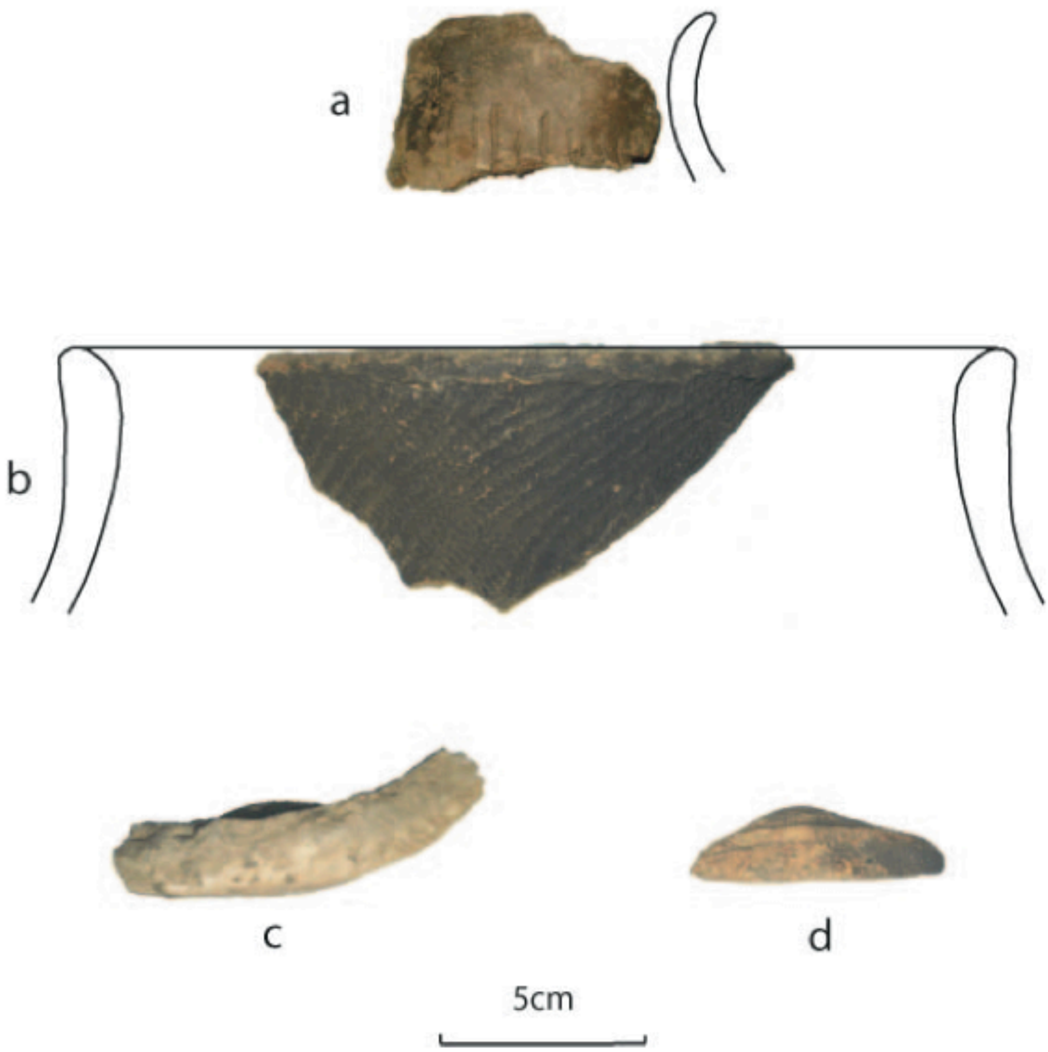

Fig. 8.117 Illustrated photograph showing ceramics from Mweru Cave, including an incised tapered rounded rim (a), a straight-necked jar (b) and two flat bases with raised interiors (c, d)

	15R1	15R2	15R4	15R5	15R6	15R7	Misc
Globular everted rim jar	4	2	2	0	0	3	1
Straight necked jar	0	1	3	0	2	1	3
Hemispherical bowl	0	0	2	0	1	1	0
Closed bowl	0	0	1	2	0	0	0
Beaker	0	0	0	0	2	1	0

Fig. 8.118 Table showing the frequency of vessel forms relative to fabric group from Mweru Cave

The rim form range from Mweru Cave (Fig. 8.119) was similar to that from Nguri and Musanze Caves and included rounded rims (44%), squared rims (22%), tapered rims (15.5%), folded rims (12.5%), beaded rims (3%) and thickened rims (3%). An analysis of the rim type relative to vessel form suggests that, in the better-represented vessels, a variety of rims forms were applied to each vessel form. Again this is similar to the results from the assemblages from the other caves.

	Squared	Rounded	Tapered	Thickened	Beaded	Folded
Globular everted rim jar	2	7	2	0	0	1
Straight necked jar	2	5	1	0	0	2
Hemispherical bowl	2	0	1	1	0	0
Closed bowl	0	2	0	0	1	0
Beaker	1	0	1	0	0	1

Fig. 8.119 Table showing the frequency of rim type relative to vessel form from Mweru Cave

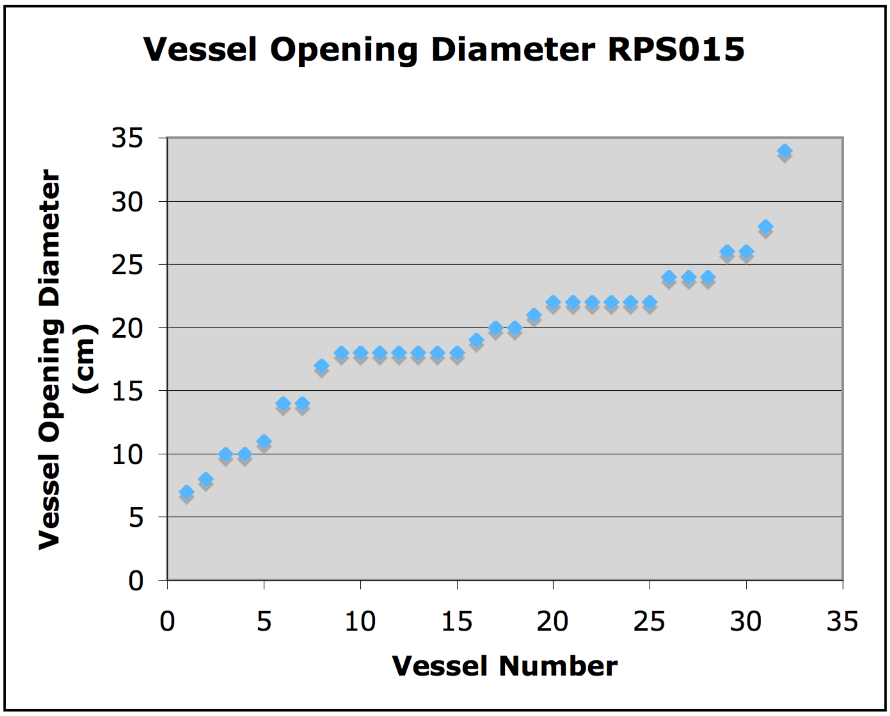

Fig. 8.120 Graph showing reconstructable vessel opening diameters from Mweru Cave (RPS015)

The vessel opening diameter estimates from Mweru Cave are very similar to those from the other caves demonstrating a similar range with most vessels from the 14 to 25cm openings but are not related to form (Fig. 8.120).

The decorative range from Mweru cave was almost totally limited to twisted–string roulette-decorated samples. There was only one reconstuctable vessel identified with knotted-strip roulette decoration, which was recovered from context [A2], whilst the remaining thirty-one vessels, found throughout the sequence, were decorated with twisted-string. Within the total excavated ceramic assemblage from Mweru cave there were only six knotted-strip roulette-decorated sherds and these were recovered from the three most recent deposits [A1], [A2] and [A3]. This can be compared to two hundred and fifty-seven sherds identified with twisted-string roulette decoration occurring throughout the stratigraphic sequence. Within the total assemblage there was also an interesting sherd with incision decoration that was recovered from the earliest context [A6] (Fig. 8.117, a). This was the only incised sherd to be recovered from any of the Late Iron Age contexts encountered during this research. Unfortunately, whilst it is intriguing and is roughly similar with non-Classic Urewe incised wares from Karama and Masangano, in the absence of further material, it is not possible to explore this occurrence further. An analysis of the angle of decoration of twisted-string rouletting shows a slight preference for the left (66%) but is generally split equally between the vessel forms (Fig. 8.121). Unusually, compared to the assemblages from Nguri Cave and the Musanze Caves the black burnished ware did not display any horizontal rouletting, however this fabric at Mweru is only represented by two reconstructable vessels, one of which does not show any decoration. Decoration across the total assemblage is most commonly seen on the lip and neck but internal decoration does occur (Fig. 8.122).

	Left diagonal	Right diagonal
Globular everted neck jar	6	4
Straight necked jar	8	2
Hemispherical bowl	2	3
Closed bowl	1	0
Beaker	1	1

Fig. 8.121 Table showing the frequency of rouletting angle relative to vessel form from Mweru Cave

	Lip	Neck	Body	Internal
Globular everted neck jar	10	11	1	5
Straight necked jar	10	10	0	2
Hemispherical bowl	3	3	1	1

Closed bowl	1	1	0	0
Beaker	2	2	0	1

Fig. 8.122 Table showing decorative zones use relative to vessel form from Mweru Cave

The only example of surface treatment in the reconstructable assemblage from Mweru cave comes from the black burnished ware. Four bases were also identified within the assemblage: a simple flat base, a flat base with a raised inner and a conical shaped base were recovered from the earliest deposit [A7] (Fig 8.117, c, d). In the following context [6] there was another conical base and a flat base with raised inner. There were also four handles recovered from the excavations, all were decorated with twisted-string roulette decoration. One was found in the earliest context [A7] and was formed from a single vertical clay band (Fig. 8.119), another was found in context [A3] made of three vertical clay bands, two from context [A2], one with a double band and one with a single band.

Fig. 8.123 Photograph showing single-banded handle from Mweru Cave

8.32 Zooarchaeological Analysis

The first context encountered [A1] produced a small zooarchaeological sample including only thirteen unidentified fragments and eight Bovid Size Class 3 specimens, one with knife-cut marks (Fig. 8.124).

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 3	Astragalus	Right		>Half		8	2
	Rib			Fractured shaft	Knife cut		
	Femur	Right	Unfused	Distal			

			distal epiphyses	epiphyses			
	Astragalus	Right		<Half			
	Pelvis			Fragment			
	Ulna			Proximal			
	Deciduous 3	Left	Mature	>Half			
	Tibia			Fragment			

Fig. 8.124 Table showing the identified zooarchaeological assemblage from [A1] Mweru Cave

The zooarchaeological assemblage from context [A2] increased significantly in size from the previous context (Fig. 8.125). This assemblage included thirty-eight unidentified bone fragments; eight Bovid Size Class 5 specimens, two with knife-cut marks; eight Bovid Size Class 4 specimens; nineteen Bovid Size Class 3 specimens; two Bovid Size Class 1 specimens; two bird specimens; and one wild pig (*suidae*) specimen. Five cattle (*Bos taurus*) specimens, two with knife-cut marks, one with puncture marks and two with burning; and four sheep/goat (*Ovicaprine*) specimens derived from at least three individuals, one with knife-cut marks; and one chicken (*Gallus gallus*) specimen, represent the domestic assemblage from this context. The identified wild assemblage included two bushbuck (*Tragelaphus scriptus*) specimens, one with burning and knife-cut marks, one duiker (*Cephalophus*) metacarpal and one white-bellied duiker (*Cephalophus leucogaster*) mandible.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Scapula	Right	Immature	Fragment		8	1
	Rib			Fractured shaft	Knife cut		
	Rib			Fractured shaft	Knife cut		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
Bovid size class 4	Humerus	Right		Fractured shaft		8	2
	Humerus	Right		Fractured shaft			
	Pelvis		Immature	Fragment			
	Metapodial			Fractured shaft			
	1st Phalanges			Fragment			
	Lumber vertebra		Fused	Vertical process			
	Lumber vertebra		Fused	Vertical process			
	Thoracic vertebra		Fused	Vertical process			

Bovid size class 3	Cranial vertebra			Fragment		19	1
	Femur	Left		Fractured shaft			
	Scapula	Right		Fragment			
	Metatarsal			Fractured shaft			
	Metatarsal			Fractured shaft			
	Caudial vertebra		Fused	Almost whole			
	Cranial vertebra		Fused	Almost whole			
	Axis			Fragment			
	Vertebra			Fragment			
	Vertebra			Fragment			
	Vertebra			Fragment			
	Vertebra			Fragment			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Metatarsal			Fractured shaft			
	Mandible			Fragment			
Bovid size class 1	Femur	Right	Fused distal	Distal		2	1
	Femur	Left	Fused proximal	Proximal			
Bos Taurus	Astragalus	Left		Whole	Knife cut	5	1
	3rd Phalanges			Whole			
	3rd Phalanges			>Half	Burnt		
	1st Phalanges			Half	Knife cut, Punched, Burnt		
	Caudial vertebra		Fused	Almost whole			
Ovis/Capra	Humerus	Right	Fused distal	Distal, Shaft		4	3
	Humerus	Right	Fused distal	Distal, Shaft			
	Tibia	Right	Fused distal	Distal	Knife cut		
	Humerus	Left	Fused distal	Distal			
Tragalaphus scriptus	Radius	Right	Fused	Distal, Shaft	Knife cut, Burnt	2	1
	1st Phalanges		Fused	Almost whole			
Cephalophus	Metacarpal		Fused	Proximal, Shaft		1	1

Cephalophus leucogaster	Mandible (G)	Right		<Half		1	1
	Lower Molar 2 (G)	Right		Whole			
	Lower Molar 1 (G)	Right		Whole			
	Lower Pre-molar 4 (G)	Right		Whole			
	Lower Pre-molar 3 (G)	Right		Whole			
	Lower Pre-molar 2 (G)	Right		Whole			
Suidea	Incisor			Whole		1	1
Gallus gallus	Tibia Tarsus		Fused	Almost whole		2	1
Bird	Long bone		Fused	Whole		1	1

Fig. 8.125 Table showing the identified zooarchaeological assemblage from [A2] Mweru Cave

The following context [A3] also contained a sizeable zooarchaeological assemblage, including ninety-two unidentified bone fragments, including: twenty-four Bovid Size Class 5 specimens, five with knife-cut marks and one with gnawing; three Bovid Size Class 4 specimens, one with knife cut marks; thirty-three Bovid Size Class 3 specimens, five with knife cut marks, five with burning and one with puncture marks; one Bovid Size Class 2 specimen; three Bovid Size Class 1 specimens; one rodent specimen; and nine bird specimens (Fig. 8.126). The identified domestic assemblage included eight cattle (*Bos taurus*) specimens, from at least three individuals, three with knife cut marks and one burnt, one gnawed and one with chop marks; and six sheep/goat (*Ovis/Capra*) specimens, two with burning, one with gnawing and one with knife-cut marks. Whilst the sheep/goat specimens were all from mature individuals, the cattle specimens were from a range of immature and mature specimens. The identified wild assemblage contained five bushbuck (*Tragelaphus scriptus*) specimens, from at least two individuals, four with knife-cut marks and burning and one with puncture marks, four common duiker (*Silvicapra grimmia*) specimens, two with gnawing and one with knife-cut marks, one lion (*Panthera leo*) tibia, and two buffalo (*Synerus caffer*) lateral maleoli.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Rib			Fractured shaft	Knife cut	24	1
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured			

				shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Proximal, Shaft	Knife cut		
	Rib			Proximal, Shaft	Knife cut		
	Rib			Proximal, Shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Scapula	Left		Proximal	Knife cut		
	2nd Phalanges			Almost whole	Gnawing		
	Sesamoid			Whole			
	Sesamoid			Whole			
	Tibia	Right	Fused distal	Distal, Shaft	Knife cut		
	Ulna	Right	Ulna	Distal			
	Cranium		Immature	Fragment			
	Upper Molar 3			Almost whole			
	Lower premolar 2	Right		Almost Whole			
	Upper molar 2	Right		<Half			
Bovid size class 4	Axis			Almost whole	Knife cut	3	1
	Femur	Right		Fractured shaft			
	Orbital	Left		<Half			
Bovid size class 3	Rib			Fractured shaft		33	2
	Rib			Fractured shaft			
	Pelvis			Fragment			
	Metatarsal			Fractured shaft			
	Thoracic vertebra			Thoracic vertebra			
	Axis		Fused	Whole			
	Cranial vertebra		Fused	Almost whole			
	Lumber vertebra			<Half			
	Caudial vertebra			<Half	Knife cut		
	Radius	Right		Fractured shaft			
	Ulna	Left		Fractured shaft			
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		

	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Pelvis			<Half	Knife cut		
	Pelvis			Fragment	Knife cut		
	Pelvis			Fragment	Knife cut		
	Pelvis			Fragment	Knife cut		
	Metapodial			Fractured shaft			
	Carpal			Whole			
	Femur	Right	Unfused proximal	Proximal, Shaft			
	Femur	Left	Unfused proximal	Proximal, Shaft			
	Metatarsal			Fractured shaft			
	Tibia	Right		Fractured shaft	Punched, Burnt		
	Ulna	Right		Fractured shaft			
	Cranium			<Half	Burnt		
	Lower deciduous 3	Left		<Half			
	Lower molar 2	Left		Almost whole			
Bovid size class 2	Thoracic vertebra			<Half		1	1
Bovid size class 1	Rib			Fractured shaft		3	1
	Rib			Fractured shaft			
	Rib			Fractured shaft			
Bos taurus	1st Phalanges		Fused	Whole	Knife cut, Chopped	3	8
	3rd Phalanges		Fused	Whole			
	Sacrum (G1)			Fragment			
	Sacrum (G1)			Fragment			
	Metatarsal		Fused distal	Distal, Shaft	Knife cut, Gnawed, Burnt		
	Upper molar 1			Almost whole	Burnt		
	Mandible (G2)		Immature	Fragment	Knife cut		
	Lower deciduous 2 (G2)		Immature	Whole			
	Lower molar 3		AC IX	Almost whole			

	Lower deciduous 3		0-6 months	Almost whole			
Ovis/Capra	Scapula	Right		Proximal, Shaft		6	1
	Pelvis			<Half			
	Calcaneum	Right	Fused	Almost whole			
	1st Phalanges		Fused	Whole	Gnawed, Burnt		
	Radius	Left	Fused proximal	Proximal, Shaft			
	Radius	Right	Fused	Proximal	Knife cut, Burnt		
Tragalaphus scriptus	Scapula			Fragment		5	2
	Humerus	Right	Fused	Distal	Knife cut		
	Astragalus	Right		Whole	Knife cut, Burnt		
	Astragalus	Right		Whole	Knife cut, Burnt		
	Astragalus	Left		Whole	Knife cut, Burnt		
Silvicapra grimmia	Scapula	Right	Fused	>Half	Gnawed	4	1
	Metacarpal		Fused	Proximal, Shaft			
	Radius	Left	Fused	Proximal, Shaft			
	Humerus	Left	Fused	Distal	Knife cut, Gnawed		
Panthera leo	Fibia			Almost whole		1	1
Synerus caffer	Lateral Maleolus			Whole		2	1
	Lateral maleolus			Whole			
Rodent	Femur	Right	Unfused distal fused proximal	Whole		1	1
Bird	Long bone					9	2
	Sacrum			>Half			
	Humerus	Left		Fractured shaft			
	Humerus	Right		Fractured shaft			
	Humerus	Right	Fused	Almost whole			
	Femur	Left	Fused proximal	Proximal, Shaft			
	Radius	Right		Fractured shaft			
	Tibia	Left		Fractured shaft			
	Tibia	Left		Fractured shaft			

Fig. 8.126 Table showing the identified zooarchaeological assemblage from [A3] Mweru Cave

The following context [A4] was again very rich in zooarchaeological specimens (Fig. 8.127). This context contained thirty-six unidentified bone fragments; twenty-five Bovid Size Class 5 specimens, two with burning, five with knife-cut marks, one with gnawing and one with puncture marks; six Bovid Size Class 4 specimens; forty Bovid Size Class 3 specimens, ten with burning, one with knife-cut marks; one Bovid Size Class 2 specimen; one Bovid Size Class 1 specimen; one rodent specimen; one *Lagomorph* specimen; and nine bird specimens. The identified domestic assemblage included three sheep/goat (*Ovis/Capra*) specimens, one with burning and nineteen cattle (*Bos taurus*) specimens, six with knife-cut marks and two with chop marks. The sheep/goat and cattle remains came from a range of immature and mature individuals. The remaining wild assemblage consisted of one rock hyrax (*Procavia capensis*) humerus; one white-bellied duiker (*Cephalophus leucogaster*) scapula; two bushbuck (*Tragelaphus scriptus*) calcaneums; two duiker (*Cephalophus*) specimens; and one common duiker (*Silvacapra grimmia*) specimen.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Femur	Left	Unfused distal	Distal	Burnt	25	2
	Tibia	Right		Fractured shaft	Punched		
	Tibia	Right		Fractured shaft			
	Cranial vertebra			Vertical process			
	Rib		Mature	Fractured shaft			
	Lumber vertebra		Fused cranial	<Half			
	Cranial vertebra			Fragment			
	Rib			Fractured shaft	Knife cut		
	Rib			Fractured shaft	Knife cut		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft	Burnt		
	Tibia	Left		Fractured shaft			
	Thoracic vertebra		Immature	Fragment			
	Cranial vertebra			<Half			
	Axis			<Half	Gnawed		
	Cranial vertebra			<Half			
	Thoracic vertebra			Vertical process	Knife cut		
	Tibia	Right		Fractured shaft	Knife cut		

	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Mandible	Left	Immature	<Half	Knife cut		
	Incisor			Whole			
Bovid size class 4	Humerus	Left		Fractured shaft		6	1
	Femur	Right		Fractured shaft			
	Scapula			Fragment			
	Thoracic vertebra		Fused	Almost whole			
	Rib			Fractured shaft			
	Axis			<Half			
Bovid size class 3	Sacrum		Unfused cranial and caudial	<Half		40	1
	Rib		Mature	Proximal			
	Thoracic vertebra			Fragment			
	Rib			Fractured shaft			
	Rib			Proximal, Shaft			
	Rib			Proximal, Shaft			
	Scapula			Fragment			
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft	Burnt		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Pelvis			Fragment			
	Pelvis			Fragment			
	Metacarpal			Distal, Shaft			
	Thoracic vertebra		Fused caudial	>Half			
	Lumber vertebra		Fused	>Half			
	Cranial vertebra		Fused cranial and caudial	Almost whole			
	Thoracic		Fused	Vertical			

	vertebra		cranial and caudial	process			
	Thoracic vertebra			Vertical process			
	Thoracic vertebra		Unfused cranial and caudial	<Half			
	Tibia	Left	Unfused distal epiphyses	Distal epiphyses	Burnt		
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft	Knife cut		
	Rib		Immature	Fractured shaft			
	Cranium			Fragment			
	Cranium			Fragment			
	Cranium			Fragment			
	Cranium			Fragment			
	Cranium			Fragment			
	Deciduous 4	Right		Almost whole	Burnt		
	Molar 2	Right		Almost whole			
Bovid size class 2	Scapula	Right		<Half		1	1
Bovid size class 1	Lumber vertebra			Fragment		1	1
Bos taurus	Humerus	Right	Fused distal	Distal	Knife cut	19	2
	Femur	Left	Fused proximal	Proximal	Knife cut		
	Radius	Left	Fused distal	Distal	Chopped		
	Pelvis			Fragment	Knife cut		
	Pelvis		Fused	Fragment	Chopped		
	1st Phalanges			Whole			
	Scapula	Left	Fused	<Half	Knife cut		
	2nd Phalanges		Fused	Whole	Knife cut		
	2nd Phalanges		Fused	Whole	Knife cut		
	Humerus (G1)	Left	Fused	Distal			
	Radius (G1)	Left	Fused	Proximal			
	Ulna (G1)	Left	Fused	Proximal			
	Lower molar 2	Left		Almost whole			
	Upper deciduous 4	Left		<Half			
	Upper deciduous 3	Right		Almost whole			
	Horn		Immature	<Half			

	Mandible (G2)	Right	0-6 months	<Half			
	Deciduous 4 (G2)	Right	0-6 months	Whole			
	Molar 1 (G2)	Right	0-6 months	Whole			
	Upper molar 1/2	Right	Mature	Almost whole			
	Lower deciduous 3	Left	Immature	Whole			
Ovis/Capra	Scapula	Right		<Half	Burnt	3	1
	Carpal 23			Whole			
	Humerus	Right	Unfused proximal epiphyses	Proximal epiphysis			
Lagomorph	Scapula	Right		Fragment		1	1
Procavia capensis	Humerus	Right	Fused	Distal shaft		1	1
Cephalophus leucogaster	Scapula			Proximal		1	1
Tragalaphus Scriptus	Calcaneum	Right	Fused	Whole		2	1
	Calcaneum	Right		Whole			
Cephalophus	Scapula	Right	Fused	Proximal		2	2
	Mandible	Left		Whole			
	Premolar 2 (G3)	Left		Whole			
	Premolar 3 (G3)	Left		Whole			
	Premolar 4 (G3)	Left		Whole			
	Molar 1 (G3)	Left		Whole			
	Molar 2 (G3)	Left		Whole			
Silvicapra grimmia	Maxilla (G4)	Left	Mature	Whole		1	1
	Molar 3 (G4)	Left	Mature	Whole			
	Molar 2 (G4)	Left	Mature	Whole			
	Molar 1 (G4)	Left	Mature	Whole			
	Premolar 4 (G4)	Left	Mature	Whole			
	Premolar 3 (G4)	Left	Mature	Whole			
	Premolar 2 (G4)	Left	Mature	Whole			
Rodent	Incisor			Half		1	1
Bird	Long bone			Fractured shaft		9	2
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Femur	Right	Unfused distal	Distal	Burnt		

	Femur	Right	Unfused proximal	Proximal shaft			
	Long bone			Fractured shaft			
	Long bone			Fractured shaft			
	Humerus	Left	Fused	Almost whole			
	Long bone			Fractured shaft			

Fig. 8.127 Table showing the identified zooarchaeological assemblage from [A4] Mweru Cave

The zooarchaeological assemblage size reduced in the following contexts. In context [A5] there were sixteen unidentified bone fragments; eight Bovid Size Class 5 specimens, four with knife-cut marks; one Bovid Size Class 4 specimen; twelve Bovid Size Class 3 specimens, two with knife-cut marks and one with burning; two Bovid Size Class 1 specimens, one bird specimen; and one wild pig (*Suidae*) worked incisor (Fig. 8.128). The domestic assemblage contained both cattle (*Bos taurus*) and sheep/goat (*Ovis/Capra*) specimens. There were four cattle specimens from two individuals both from immature individuals, and four sheep/goat specimens from at least two individuals both immature and mature. There was only one other specimen from this context a bushbuck (*Tragelaphus scriptus*) first phalange (Fig. 8.125).

Fig. 8.128 Photograph showing a worked wild pig tooth from Mweru cave

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Femur	Left	Fused proximal	Fragment		8	1
	Rib			Fractured shaft	Knife cut		

	Rib			Proximal shaft			
	Rib			Fractured shaft	Knife cut		
	Rib			Fractured shaft	Knife cut		
	Rib			Fractured shaft	Knife cut		
	Cranial vertebra		Unfused cranial and caudial	<Half			
	Sessamoid			Whole			
Bovid size class 4	Patella			Almost whole		1	1
Bovid size class 3	Rib			Fractured shaft	Knife cut	12	1
	Rib			Fractured shaft			
	Scapula	Left		Fragment			
	Metatarsal			Fractured shaft			
	Femur	Left		Proximal			
	Lumber vertebra		Fused	>Half			
	Rib			Fractured shaft			
	Astragalus	Left		Whole	Burnt		
	Lumber vertebra			<Half			
	Lumber vertebra		Unfused cranial and caudial	Almost whole			
	Metatarsal			Fractured shaft			
	Radius	Right		Fractured shaft	Knife cut		
Bovid size class 1	Rib			Fractured shaft		2	1
	Thoracic vertebra			Vertical process			
Bos taurus	3rd Phalanges			Almost whole		4	2
	Mandible (G1)	Left	0-6 months	Half			
	Deciduous1 (G1)	Left	0-6 months	Whole			
	Deciduous 2 (G1)	Left	0-6 months	Whole			
	Deciduous 3 (G2)	Left	0-6 months	Whole			
	Incisor			Whole			
	Mandible (G2)	Right	6-15 months	Half			
	Premolar 2 (G2)	Right	6-15 months	Whole			
	Premolar 3 (G2)	Right	6-15 months	Whole			
	Premolar 4 (G2)	Right	6-15 months	Whole			

	Molar 1 (G2)	Right	6-15 months	Whole			
	Molar 2 (G2)	Right	6-15 months	Whole			
Ovis/Capra	Radius	Right	Just fusing proximal	Proximal, Shaft		4	2
	Scapula	Right	Fused proximal	Proximal			
	Radius	Right	Unfused	Distal			
	Maxilla (G3)	Left	Immature	Fragment			
	Deciduous 2 (G3)	Left	Immature	Whole			
	Deciduous 3 (G3)	Left	Immature	Whole			
	Deciduous 4 (G3)	Left	Immature	Whole			
	Mandible 1 (G3)	Left	Immature	Whole			
Tragalaphus scriptus	1st Phalanges		Fused	Whole		1	1
Suidea	Incisor			Whole		1	1
Bird	Long bone			Whole		1	1

Fig. 8.129 Table showing the identified zooarchaeological assemblage from [A5] Mweru Cave

The following context [A6] included only three unidentified bone fragments, one Bovid Size Class 5 specimen, two Bovid Size Class 3 specimens, one Bovid Size Class 2 specimen and one sheep (*Ovis aries*) orbital (Fig. 8.130)

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Cranial vertebra			Fragment		1	1
Bovid size class 3	Rib			Fractured shaft		2	1
	Rib			Fractured shaft			
Bovid size class 2	Cranium			Fragment		1	1
Ovis aries	Orbital	Left		Fragment		1	1

Fig. 8.130 Table showing the identified zooarchaeological assemblage from [A6] Mweru Cave

The earliest context [A7] contained five unidentified specimens; four Bovid Size Class 5 specimens, one with chop marks; one Bovid Size Class 4 specimen; four Bovid Size Class 3 specimens; and one Bovid Size Class 2 specimen with chop marks (Fig. 8.131). The wild remains identified to species included one bushbuck (*Tragelaphus scriptus*) skull. The domestic remains include three cattle (*Bos taurus*) specimens, both immature and mature, and three mature sheep/goat (*Ovis/Capra*) specimens.

Taxon	Element	Side	Aging	Part	Modification	NISP	MNI
Bovid size class 5	Metatarsal		Unfused proximal	Proximal		4	1
	Rib			Fractured shaft	Chopped		
	Pelvis			Fragment			
	Lumber vertebra			Vertical process			
Bovid size class 4	Thoracic vertebra			<Half		1	1
Bovid size class 3	Pelvis			Fragment		4	1
	Rib			Fractured shaft			
	Rib			Fractured shaft			
	Rib			Fractured shaft			
Bovid size class 2	Scapula	Left	Fused proximal	Proximal	Chopped	1	1
Bos taurus	Metatarsal		Fused distal	Distal shaft		3	1
	Ulna	Right		Fractured shaft			
	Pre-molar 3/4		Immature	Whole			
Ovis/Capra	Tibia	Right	Fused distal	Distal shaft	Chopped	3	1
	Femur	Right	Fused proximal	Proximal			
	Maxilla (G1)	Left		<Half			
	Premolar 2 (G1)	Left		Whole			
	Premolar 3 (G1)	Left		Whole			
	Premolar 4 (G1)	Left		Whole			
	Molar 1 (G1)	Left		Whole			
	Molar 2 (G1)	Left		Whole			
	Molar 3 (G1)	Left		Whole			
Tragalaphus scriptus	Horn (G2)	Right	Immature	Fragment		1	1
	Cranium (G2)	Right	Immature	<Half			
	Maxilla (G2)	Right	Immature	Whole			
	Molar 3 (G2)	Right	Immature	Whole			
	Molar 2 (G2)	Right	Immature	Whole			
	Molar 1 (G2)	Right	Immature	Whole			

Fig. 8.131 Table showing the identified zooarchaeological assemblage from [A7] Mweru Cave

Summary

The zooarchaeological assemblage from Mweru Cave, RPS015, is broadly consistent with the remains recovered from all of the other caves. Throughout all of the archaeological deposits there were wild remains alongside domestic remains and again a variety of age ranges have been exploited.

8.33 Palaeobotanical Analysis

Palaeobotanical samples were taken from every deposit encountered during the excavations at Mweru Cave. However, none of these samples returned any palaeobotanical remains. Whilst this may reflect the absence of grain use by the Late Iron Age occupants of the cave it is also likely that this reflects poor preservation conditions.

8.34 Other Finds

A range of other finds was also recovered from the excavations at Mweru Cave. In the most recent context [A1] there was a worked bone with perforations at each end (Fig. 8.132), a thin metal bracelet, a small metal point and an iron hook. There were no finds from context [A2]. The following context [A3] contained a small spearhead and an iron blade (Fig. 8.133). Context [A4] contained two white shell beads and brown bone bead. The next context [A5] contained three white bone beads, an oblong white bead and a brown bead. In the earliest archaeological context [A6] there was an iron point, two large iron objects, one projectile point, possibly a spearhead (Fig. 8.134) and four and a half white shell beads (Fig 8.135).

Fig. 8.131 Photograph showing worked bone with two perforations, Mweru Cave

Fig. 8.132 Photograph showing an iron blade from Mweru Cave

Fig. 8.133 Photograph showing a broken iron spearhead from Mweru Cave

Fig. 8.134 Photograph showing a shell beads from Mweru Cave

8.35 Summary

The excavations at Mweru Cave produced a similar dated assemblage to the other cave. The earliest context was dated to the beginning 2nd millennium AD, as were all the previous caves. The cave also contained a large assemblage of twisted-string roulette decorated ceramics including a fine black burnished ware in the later deposits that was also identified at the Musanze Caves and Nguri Cave. The zooarchaeological assemblage also demonstrated that domestic species were utilised alongside more frequent wild species.

8.36 Northern Rwanda Conclusions

The northern excavations were very successful as they encountered both 1st millennium AD deposits at Masangano and a variety of 2nd millennium AD deposits in the Virunga Caves. The earliest of these deposits were successfully radiocarbon dated producing the first ever radiocarbon date for Masangano, and a series of dates for the caves that will help this thesis to explore the suggestion that roulette-decorated ceramics appeared in Rwanda in the late 1st millennium AD (e.g. Van Noten 1983) (see discussion Chapter 9 section 9.4 and section 9.14).

The ceramic analysis identified a mixed assemblage from Masangano including Classic Urewe, incised and impressed non-Urewe ceramics and a boudiné ceramic. The ceramic analysis from the caves explored the potential for ceramic patterns within the roulette-decorated assemblages and successfully identified a discrete ceramic type, named here black burnished ware with a fine twisted-string roulette-decoration that was stratigraphically confined to the latest cave deposits.

There were no subsistence remains identified at Masangano. However, the cave excavations identified large zooarchaeological assemblages and a variety of palaeobotanical remains. These finds suggest that the cave occupants were maximising the available subsistence sources and strategies utilising both domestic and wild resources. However, the predominance of wild remains alongside the hunting implements suggests that the cave occupants were primarily involved with hunting (see Chapter 9 section 9.20 onwards).

The northern results, along with the southern and central results, will now be contextualised in detail within this research and extant debates in Rwandan and Great Lakes Africa archaeology in Chapter 9.

Chapter 9

Contextualising the Results

Chapters 6, 7 and 8 presented the results of the fieldwork and analyses of this research grouped within geographic case studies. This chapter will now contextualise these results within Iron Age archaeological debates introduced in Chapter 4. It will also directly address the research questions identified in that chapter. This will be achieved under the following headings: economy and culture in the Early Iron Age; Late Iron Age transition and its broader relevance; and cave dwelling and cultural diversity in the 2nd millennium AD: an alternative history.

The ten radiocarbon dates produced by this research, combined with ceramic typological evidence, suggest that the excavated deposits represent three distinct phases within the Iron Age (Figs. 9.1 and 9.2). The dates from Masangano (OxA-19520) and Kabusanze (OxA-19517; OxA-19518; OxA-19583) fall firmly within the Early Iron Age and are associated with Classic Urewe ceramics (although the two assemblages are distinct in the range of vessel forms and decoration they include) (Clist 1987: 43; Van Grunderbeek 1992: 63). The single date from Karama (OxA-19519) places the pit feature towards the terminal 1st millennium AD, within the archaeological hiatus (discussed in Chapter 4 section 4.2), and the ceramics have similarities with devolved Urewe (e.g. Posnansky et al. 2005). Finally, the dates from the earliest deposits in the caves in northern Rwanda (OxA-19521; OxA-19522; OxA-19523; OxA-19524; OxA-19811) all fall at the start of the 2nd millennium in the Late Iron Age and are associated with roulette-decorated ceramics.

Site Name	Sample No.	Context Type	Date	Calibrated (2 sigma)
Kabusanze	OxA-19517	Large pit	1610 ± 26 BP	425 – 573 AD
	OxA-19518	Burial pit	1630 ± 26 BP	417 - 554 AD
	OxA-19583	Small pit	1694 ± 37 BP	263 – 538 AD
Masangano	OxA-19520	Earliest deposit	1698 ± 27 BP	266 – 534 AD
Karama	OxA-19519	Conical pit	1291 ± 25 BP	688 – 877 AD
Musanze II	OxA-19521	Earliest deposit	956 ± 26 BP	1040 – 1201 AD
Musanze III	OxA-19522	Earliest deposit	996 ± 25 BP	1028 – 1152 AD
Nguri Cave	OxA-19523	Base of deposit	956 ± 26 BP	1042 - 1206 AD
Mweru Cave	OxA-19524	Burnt floor	951 ± 25 BP	1041 - 1202 AD
	OxA-19811	Earliest deposit	940 ± 26 BP	1045 – 1214 AD

Fig. 9.1 Table showing the radiocarbon results produced by this research

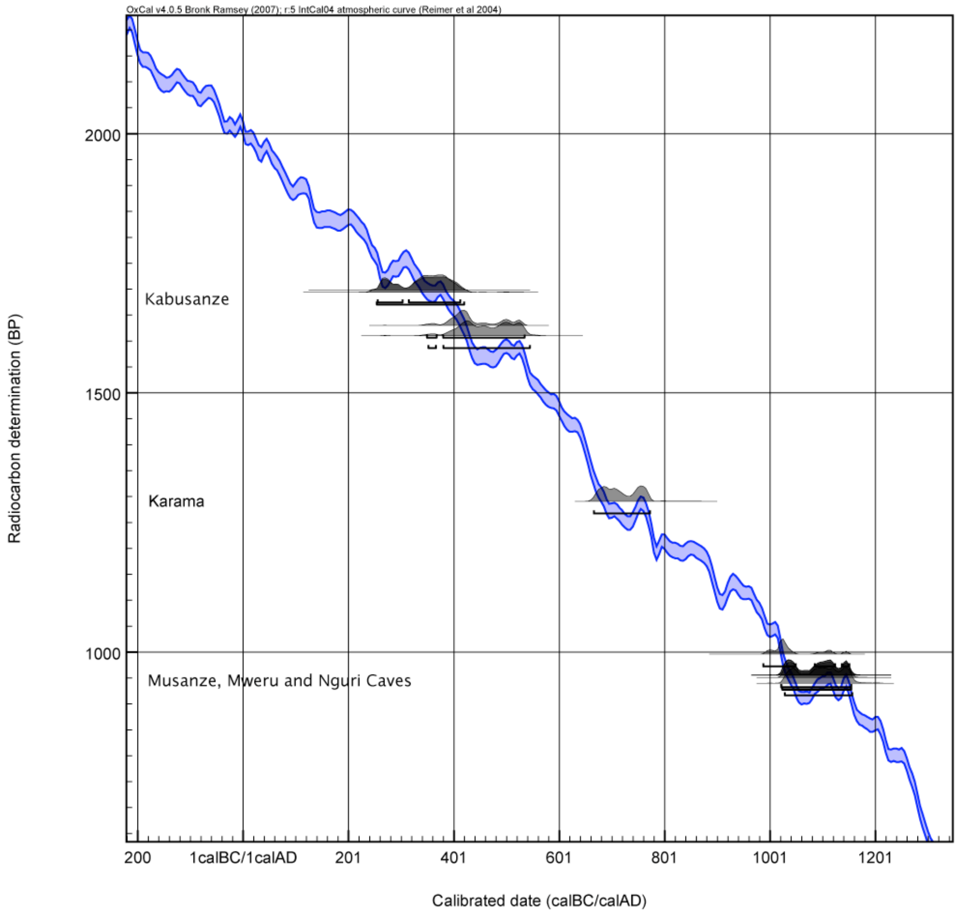

Fig. 9.2 Graph showing the distribution of radiocarbon dates from this research plotted against the calibration curve.

9.1 Culture and Economy in the Early Iron Age

This section deals with the research results from Kabusanze and Masangano that have been dated to the early-mid 1st millennium AD and will contextualise the ceramics, subsistence remains and burial data within Rwanda and Great Lakes Africa.

9.2 Early Iron Age Ceramic Variation

Related research questions: How can Urewe be defined? Is Urewe a homogenous ceramic type or can meaningful variation be identified within it?

The ceramic assemblage from Kabusanze was entirely made up of Classic Urewe and has been dated to the Early Iron Age, 5th to 6th centuries AD. In comparison, whilst some of the ceramics from Masangano fit a broad classification for Urewe and have been dated to the 3rd to 6th century AD, well within the accepted date range of the Early Iron Age, the assemblage from Masangano does not fit the typical Classic Urewe typology. This section will discuss these differences and their context within a broader regional understanding of Early Iron Age ceramics and will continue to demonstrate that whilst Urewe is a regionally unified ceramic it also contains much meaningful variation at both a site and inter-site level.

9.3 Kabusanze

The ceramics from Kabusanze, discussed in detail in Chapter 6 (section 6.4), are made up of seven fabrics with fabric B1 being responsible for 83% of the assemblage. There were 62 reconstructable vessels recovered from Early Iron Age contexts at Kabusanze covering eight forms with jars representing 38% of the assemblage and a range of bowls accounting for the remaining 62%. Bevelled rims, including both complex (greater than 3) and simple, dominated the rim types (88%) with the remainder made up of rounded and squared rims. Overall jars showed the greatest input of effort with 95% of the examples showing complex bevelling and 97% of jars receiving decoration, the majority of which was cross-hatching.

Whilst the overall range of vessel types, decorative features, and fabric were consistent with Classic Urewe found in Rwanda and Burundi and the neighbouring regions (e.g. Hiernaux and Maquet 1957, 1960; Posnansky 1961b; Nenquin 1967a, 1971; Meulemeester and Waleffe 1973; Van Noten 1983; Van Grunderbeek 1988;

Ashley 2005) the distribution of forms and effort investment are in contrast to those found by Van Grunderbeek (1988: 12) and Ashley (2005). Their multi-variant analyses suggested that jars were the most frequent vessel form, (60%) but that bowls received the most effort-investment, based on decoration and rim complexity, whilst the jars were made of coarser fabrics, had simpler rims and received less decorative investment. Ashley (2005: 174) suggests, based on her results from Entebezamikusa, that this is related to socio-functional applications. For example, the more public role of bowls, such as in serving, makes them more visible and thus imbues them with greater social meaning unlike the jars which were used for storage or pouring and thus had a more utilitarian status. For example jars are associated with liquid storage, such as water, milk or beer whereas bowls are linked with serving and consumption and whilst jars are the most frequent vessel form at Entebezamikusa they have the least energy invested. However, if similar reasoning were to be applied to the Kabusanze material it would indicate that the jars were the socially imbued vessels whilst the bowls were less socially valued and were more utilitarian. Jars are the most frequent vessels represented at Kabusanze but they have the most effort invested. Thus, suggesting a different way of life or set of values at Kabusanze. Ashley (2005: 174) suggests that the storage of liquids is clearly functionally important at Entebezamikusa and central to Early Iron Age existence but isn't as symbolically or socially important as serving because it is not as visible. Therefore, perhaps at Kabusanze either storage was a more visible activity, was a more important activity, or there was a different set of standards that, for example, valued private, or less-visible, space and objects over the public more visible ones.

Thus, the ceramic results from Kabusanze support Ashley's (2005: 290) conclusions regarding the potential of a *châine opératoire,* multi-variant approach to Urewe ceramics in contrast to Van Grunderbeek's (1988) more limited findings. Van Grunderbeek's (1988) analysis of the Urewe ceramics from Rwanda and Burundi established that although variation exists within Urewe it is too diverse, being geographically and temporally unpredictable, to identify meaningful sub-divisions at a macro-scale. However, by analysing for local, site based scales of variation and by contextualising these within broader interpretations of the site, Ashley (2005: 284) has identified meaningful variation, that through comparative analysis may help to identify socio-functional distinctions between sites as proposed here.

9.4 Masangano

Related research questions: Is Urewe a homogenous ceramic type or can meaningful variation be identified within it? What happened to Urewe at the end of the Early Iron Age?

At Masangano the Early Iron Age ceramic picture, described in detail in Chapter 8 (section 8.5), is quite different to the examples already discussed. Whilst previous work at the site has identified a range of Classic Urewe sherds from jars and bowls, with complex bevelled rims, dimpled bases and incised motifs (Hiernaux and Maquet 1960; Nenquin 1967a; Van Noten 1983), the excavations during this research encountered a much more diverse assemblage. A single fabric dominated the analysed assemblage from Masangano and the technological profile was generally to similar to that identified at Kabusanze. However, the morphological profile at Masangano differs to that encountered at Kabusanze. For example, jars accounted for only 15% of the assemblage at Masngano, with the remainder bowls, representing a sever reduction in the frequency of this form compared to Kabusanze (although the size of the assemblage here is quite small, which may have introduced error). There is also an overall reduction in effort investment at Masangano compared to Kabusanze. For example, at Masnangano, unexpectedly in an Early Iron Age context associated with Urewe, rounded rims (67%) and not bevelled rims (19%) dominate and there were no complex bevelled rims. Furthermore, decoration applied less and the decorative range is also distinct. Whilst incised cross-hatching, rocker stamping, linear punctates and stab-drag consistent with Classic Urewe exist, there were also boudiné and fingernail impressed ceramics (Figs. 8.14 to 8.17). Within the incised group there were multiple examples of fingernail impressed sherds, herringbone incision, crosshatching, incised triangular and circular motifs.

Although some published illustrated ceramics from Masangano (e.g. Hiernaux and Maquet 1957; Nenquin 1967a: 269; Van Noten 1983: Plates 36 and 37) fit well with the established typology for Classic Urewe the excavated assemblage encountered during this research did not. The previously published assemblages demonstrate the presence of Classic Urewe styles such as a range of bevelled rims, both complex and simple, a restricted fabric range, with a range of vessel forms and incised geometric motifs. However, there were no complex bevels in the excavated assemblage encountered by this research, very few jars and a highly variable range of decoration, elements of which, such as boudiné application and fingernail impressions, are unexpected on Classic Urewe ceramics (for a finger nail exception see the material from Ruhimangyargya, Nenquin 1967a: 258). Furthermore, the application of some of the incised decoration was of a very poor standard compared to Classic Urewe vessels. Thus, the assemblage from Masangano cannot be accounted for by a Classic Urewe typology alone and is clearly distinct from the Early Iron Age assemblage identified at Kabusanze. Therefore the ceramic anomalies that form the Masangano assemblage, such as the appearance of boudiné application must be addressed.

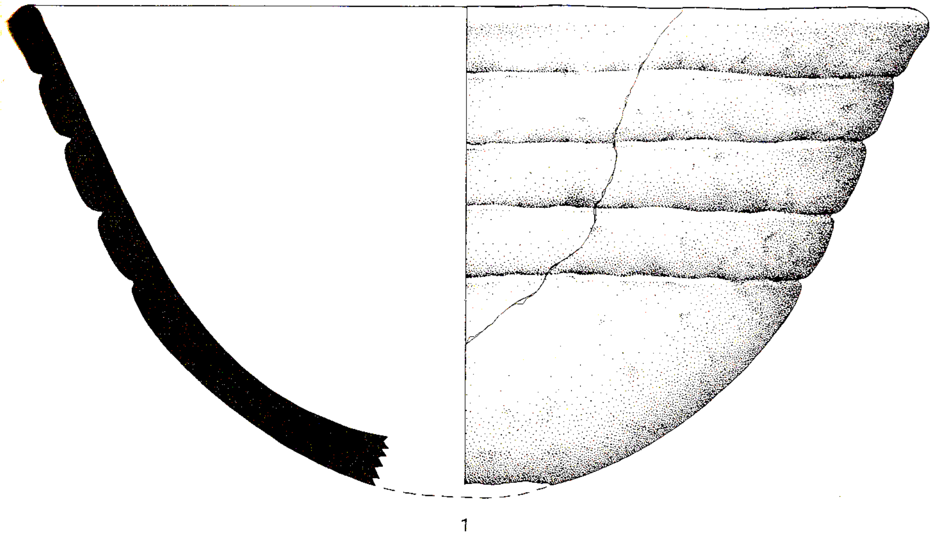

Fig. 9.3 Illustration showing boudiné open vessel from Kabuye, Rwanda (reproduced from Van Noten 1983: Plate 11)

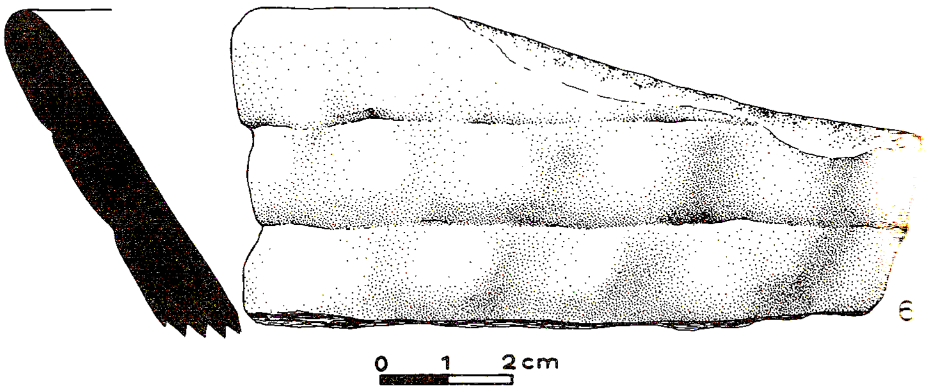

Fig. 9.4 Illustration showing boudiné ceramic from Kabuye V, Rwanda (reproduced from Van Noten 1983: Plate 22)

Hiernaux and Maquet (1960: 51) identified distinct decoration in Rwanda at Nyirankuba and named it boudiné ware and Van Noten (1983: Plates 11 & 22) identified similar decoration at Kabuye (Figs. 9.3 and 9.4), although he did not connect it with boudiné ware. This decorative type has also been identified outside of Rwanda in Uganda in the Chobi sector of Murchisons Falls, where Soper (1971b: 60-63) called it Chobi Ware but noted its relationship to Hiernaux and Maquet's

(1960: 51) boudiné ware and Chapman (1967: 21-22) has also found boudiné ceramics at Kanysore Island, southwest Uganda. Significantly, in all these examples boudiné has been identified in association with Urewe. For example, at Murchinsons Falls Soper (1971: 85) found it in stratigraphic association with Urewe at Site 14A and at Nyirankuba, Hienaux and Maquet (1957: 51-52, 96-97) noted its typological association with Urewe within a surface assemblage that included Classic Urewe through the identification of bevelled rims on some examples and the consistent use of the same fabric for both Urewe and boudiné examples. There have also been suggestions that boudiné existed into the Late Iron Age, for example, Soper (1971b: 85) tentatively identified it at Kibiro. However, later work by Connah (1997: 49) has ruled this out. Posnansky (1968b: 2) identified a boudiné application in the Late Iron Age deposits at Bweyorere but Soper (1971b: 63) disregards the cultural association between these and his Chobi Ware sites based on the considerable difference in paste and chronological separation. Finally, Chapman (1967: 21-23) identified boudiné alongside roulette-decoration on individual sherds. However, she disassociated her boudiné with that of Hiernaux and Maquet (1960) because of its dissimilar fabric believing her material to be more comparable to Posnansky's (1968b) Late Iron Age boudiné from Bweyorere (Chapman 1967: 21). Thus, on present evidence there appears to be at least two non-associated boudiné types in Great Lakes Africa, one that is associated with Urewe and another much later occurrence associated within the Kingdom Era.

The identification of boudiné in the excavated assemblage at Masangano may help explain the high percentage of bowls in the overall assemblage. For example, boudiné is only found on bowl forms at Masangano, and in all the other sites discussed here, and its presence within the assemblage is likely to have over emphasised the use of bowls at the site. The radiocarbon date taken for the settlement horizon at Masangano is believed to be the first absolute date to be generated for boudiné. Whilst its relationship with Urewe has been established (Soper 1971b: 86), finer dating has been more difficult, leading Connah (1997: 49) to simply state that it may be a "pre-roulette style". This research further supports its association with Urewe, its lack of association with roulette-decorated wares, and whilst not being able to expand on its full date range, does suggest that the ceramic was present in north-west Rwanda between the 3rd to 6th centuries AD. Unfortunately, more extensive explorations of the nature and definition of boudiné in Early Iron Age Urewe contexts have continued to be hampered because of the low frequency of the ceramic. For example, only three reconstructable boudiné vessels were found at Masangano, two at Kabuye (Van Noten 1983: 13, 15 and Plates 11 &

22), twenty-eight sherds at Nyirankuba, one at Kiruhura (Hiernaux and Maquet 1960: 51, 55) and thirty-three sherds at eleven sites during Connah's (1997: 45) work around Chobi region, and an unspecified but small number of sherds from the same area found by Soper (1971b: 82). However, based on the present evidence two clear features of boudiné can be identified. Firstly, boudiné is always applied to hemispherical or open bowls and second, it is always made from the same fabric as the Classic Urewe vessels that it is found in association with. The first of these suggests a functional association for boudiné and the secondly that it was made by the same potters that made the Urewe ceramics, as suggested by Hiernaux and Maquet (1960: 51), and not by separate populations, as suggested by Soper (1971b: 86).

Although the identification of boudiné ware in the excavated assemblage from Masangano helps to explain some of the variation identified within the assemblage it is not sufficient to account for all of the ceramic anomalies. For example, if the boudiné and Classic Urewe sherds are removed, the remaining assemblage includes a large variety of poorly executed incised decorations and simplistic rim forms. Thus, there are at least three distinct sub-divisions within the ceramics excavated at Masangano: a Classic Urewe, boudiné and a separate incised ware. Similar "non-Urewe-incised wares" or "C-Ware" ceramics have previously been identified within Rwanda at the sites of Masangano (Fig 4.10), Bugarama (Fig. 4.11), Kiguhu (Fig. 4.12), Mutwarubona II, Kabuye II (Fig. 4.13) and Kabuye XV (Hiernaux and Maquet 1960; Nenquin 1967a: 284; Van Noten 1983; Van Grunderbeek 1992) (see Chapter 4 section 4.5). However, radiocarbon dates are only available for some of these sites and those that are available place these ceramics in the terminal 1st millennium AD, beyond the latest margin for the excavated assemblage from Masangano.

Ashley (2005), Posnansky et al. (2005) and Reid and Ashley (2007), have identified localised processes of devolution within Urewe ceramics during this later period (discussed in Chapter 4 section 4.5 and again later in this chapter section 9.15 onwards). Within that model, although the detail of devolution is unique to each local area or site, the general process is comparable. For example, there is a lessening of investment in complex forms and decoration and a general reduction in the overall quality of the ceramic. This is broadly comparable to the excavated assemblage at Masangano where complex bevelled rims are non-existent and simple bevelled rims are rare compared to simple rounded types. Furthermore, the execution of the decorative styles is much poorer than in Classic Urewe, although it is notable that, like the boudiné material the fabric does not differ greatly from the

Classic Urewe examples found. Therefore, supporting the suggestion that these were all made by people familiar with similar clay sources and production traditions, such as mixing.

Unfortunately, the assemblage from Masangano is too small to make a confident association between devolved Urewe and the incised non-Classic Urewe. Nevertheless, the occurrence of these three ceramic groups within a single deposit needs explanation. Devolved Urewe as defined by Ashley (2005) and Posnansky et al. (2005) is a post-Urewe ceramic, dated to the terminal 1st millennium AD archaeological hiatus. However, if the identification of it at Masangano, postulated here, is correct then it occurs in the same deposit as Classic Urewe and boudiné that are presumed to be earlier. One possibility is that the deposit formed over a long period of time leading to the incorporation of both earlier and later styles in one mixed deposit. However, the deposit is stratigraphically distinct and relatively thin, all factors that do not suggest sustained formation from the mid to late 1st millennium AD. Furthermore, this explanation falls into the same conceptual trap identified in Chapter 4 (section 4.1) where archaeological adaptations follow chronological frameworks instead of influencing the framework. Alternatively, the assemblage may represent deposition of various related ceramic traditions by separate groups at the same location, perhaps encouraged by Masangano's position at the confluence of two major rivers, in an extremely fertile zone at a geographic crossroads. Indeed, Ashley (2005) has identified contemporary non-Classic Urewe ceramics at Usenge 3 that she calls "Contact Urewe" (also see Lane 2007 et al.) (see Chapter 4, section 4.4.). However, in the absence of further supporting archaeological material, such as subsistence remains, a larger ceramic assemblage, or more dates, such as direct dates from ceramic inclusions, it is not possible to develop these arguments further. Nevertheless, it is clear that these ceramics are related although the nature of that relation is yet to be established.

9.5 Early Iron Age Subsistence Economy: Some Empirical Contributions

In many respects the palaeobotanic and zooarchaeological remains recovered during this research for sites relating to Urewe users are extremely limited. For example, no subsistence remains were recovered from Masangano and only rare charred seed remains were identified at Kabusanze. However, in the absence of any direct palaeobotanical evidence for domestic crops during this period in Rwanda and much of Great Lakes Africa the dated remains identified here are believed to be very significant.

9.6 Kabusanze 300-600 AD: farming

There is linguistic evidence for the exploitation of cattle in the Early Iron Age (Schoenbrun 1998: 74), and limited archaeological evidence, a single cattle tooth from a 3rd century AD iron production context from Remera, Rwanda (Van Noten 1983: 20, 77). Unfortunately this research failed to recover any faunal remains from Kabusanze and so cannot add to our understanding of Early Iron Age herding. However, the palaeobotanical analysis did identify rare charred sorghum (*Sorghum bicolor*) and pearl millet (*Pennisetum glaucum*) seeds from two of the dated contexts (Fig. 9.5).

Site Name	Sample	Context Type	Specimens	Date
Kabusanze	12	Large pit fill	Sorgum	425 – 573 AD
	11	Small pit fill	Pearl millet	263 – 538 AD

Fig. 9.5 Table showing a summary of the palaeobotanical results from Kabusanze

There is a range of indirect evidence for agriculture in the Early Iron Age, such as the prevalence of sites located in environmentally advantageous areas such as the hills on the central plateau, environmental degradation on Kabuye hill east of Butare (Van Grunderbeek and Roche 2007), and linguistic evidence for the use of cereals and cultivation (Ehret 1998: 127-130; Schoenbrun 1998: 72). However, there is only limited direct evidence for agriculture during the Early Iron Age and the results from Karama represent the first, and thus the earliest, charred seed remains of domestic cereal crops in Rwanda. The only other direct evidence for agriculture in the Early Iron Age comes from pollen analysis conducted by Van Grunderbeek and Roche (2007: 306-307) from Kabuye IV (240-400 cal AD (Oxcal, 95.4%); III 420-600 cal AD (Oxcal, 95.4%), and Kabuye II 560-690 cal AD (Oxcal 95.4%) where pollen spectra at all three sites contained cereal pollen. Van Grunderbeek and Roche (2007: 306-307) identified part of the Gramineae pollen at Kabuye IV to finger millet (*Elusine coracana*) and similarly in Kabuye III and Kabuye II, and sorghum (*Sorgum bicolor*) at Kabuye IV and Kabuye III. Unlike other pollen data these results are not believed to be intrusive because they were collected from within sealed iron furnace bases and in the case of Kabuye II came from a pot interred beneath a furnace. Based on the low frequency of their pollen results, 2-3%, Van Grunderbeek and Roche (2007: 307) suggest that, “small plots were probably devoted to cereal cultivation, initially of *Eleusine*, a very fire-resistant African cereal that benefits from slash-and-burn preparation of the plot, and subsequently sorghum.”

Although these cereal crops are believed to have originated in Africa, the evidence suggests that they were not domesticated in Great Lakes Africa. Instead their appearance in that region has been associated with Urewe users (Van Grunderbeek and Roche 2007: 307). Early finds of domesticated sorghum include Kawa in Nubia from before 500 BC and several in greater Nubia from the last centuries BC and first centuries AD (Fuller 2004, 2005). There is early evidence of pearl millet exploitation in West Africa dated to the first half of the 2nd millennium BC (cultivation) and later fully domesticated millet cultivation at Tichit sites. There is also early evidence of domesticated pearl millet from Dhar Nema, Mauritania from the mid 1st and mid 2nd millennium BC (Fuller et al. 2007: 71-76). Thus, the evidence from Kabusanze does not alter our understanding of the early appearance of cereal crops in sub-Saharan Africa but the much later results from Kabusanze continue to support the association of agriculture with the Early Iron Age and with Urewe in Great Lakes Africa. Whilst these finds consist of only a few charred seeds, in the absence of good preservation conditions over much of Great Lakes Africa (Young and Thompson 1999), they are very important. Unfortunately, considering preservation conditions, it appears that only by patiently testing for and collecting rare evidence piece by piece will archaeology be able to re-construct Early Iron Age subsistence in Great Lakes Africa.

9.7 Funerary Practice in the Early Iron Age

This chapter will now contextualise the Early Iron Age burial identified at Kabusanze (Chapter 6 section 6.7). Whilst the identification of mortuary data was not a primary research objective of this research, the Early Iron Age Urewe burial from Kabusanze will help the research to explore more elements of the Iron Age in Rwanda and make a contribution to new perspectives regarding Rwanda's pre-colonial past.

The Early Iron Age burial identified and excavated at Kabusanze in southern Rwanda, during this research, represents a unique Urewe burial. Whilst another similar burial has been encountered (Misago and Shumbusho 1992), this is the first to be identified in Rwanda, the first in Great Lakes Africa to be radiocarbon dated and the earliest to include an exotic artefact alongside a range of near complete vessels and iron objects. However, the deliberate deposition of Urewe ceramics is not unique and is a reoccurring feature noted since the first formal identification of Urewe at Siaya (Leakey et al. 1948). Thus, this section will not only contextualise the burial remains within the extant data for Iron Age burials in Rwanda and 1st millennium AD burials more further afield but will also contexualise the exotic cowrie shell within the extant evidence for long-distance trade in central Africa before describing how the deliberate deposition of Urewe at Kabusanze compares to that at other sites such as Siaya in Kenya (Leakey et al. 1948) and Lolui in Uganda (Posnansky et al. 2005).

9.8 Summary of Kabusanze Burial Data

The burial has been described in detail in Chapter 6 (section 6.7) but the salient results are summarised here. The burial contained two skeletons, one of an adult and one of a neonate, situated approximately 0.5m above the adult in the burial shaft. Whilst the infant burial was well preserved and is almost complete adult skeleton was only partially represented, consisting of the mandible, maxilla, a broken humerus, upper vertebrae and a few ribs. Based on these remains the neonate is believed to have survived birth but by no more than a few weeks. Unfortunately the death of the adult cannot be estimated although it appears to have reached anatomical maturity. It has not been possible to attribute a sex to the infant but based on the robust mandible the adult is believed to have been male. The adult had a variety of dental pathological conditions, including a large abscess, dental decay and infection, however, none that can be suggested to have caused death. (For more details please see the specialist report, Appendix 1). Charcoal was identified in association with the adult human remains and a sample of this was dated to c.400 AD.

The lack of most of the adult's post-cranial skeleton initially suggested poor preservation conditions. However, the relatively well-preserved cranial elements and humerus argue against this. It is not believed that this is the result of secondary burial because the upper body was placed in a broadly anatomical position, including ribs, and was surrounded by grave goods, also it is not believed to be the product of later disturbance and robbing because the grave is sealed stratigraphically by the large Urewe filled pit above it, dated to the same period. Furthermore, the infant skeleton was found approximately 0.5m above the adult skeleton so there seems no reason why the adult would be disturbed even if the infant were buried significantly later within the Early Iron Age. Thus it is believed that the complete adult skeleton was not interred. This is supported by evidence of defleshing and decapitation on the humerus and mandible, along with a post-mortem fracture on the humerus. Thus, in the absence of other evidence, it is tentatively suggested here that the individual either suffered a violent death or was modified after death but before burial, during which time the skeleton became incomplete. Without more comparable graves it is not possible to comment further on the significance of this.

Around the burial were located a series of ten near complete Urewe vessels and one complete one, from the full range of vessel forms, creating a ceramic set. These pots showed a clear fabric selection preference with ten out of eleven vessels coming from a single fabric. To the side of the ceramic and bone concentration of the adult burial there were also four iron objects, believed to be a necklet, two bracelets, and a disc shaped object, a quartz flake, shell beads and a cowrie shell (Figs. 6.38 to 6.40). The cowrie shell is of particular importance because the nearest source for this object is the Indian Ocean at the east African coast or the west coast of central Africa, and thus this object may represent the earliest known long-distance exchange artefact in the central African interior.

9.9 Great Lakes Africa and Central Africa Early Burials

Thus, this burial is believed to be unique within the context of the Early Iron Age in Rwanda. However, other burials have been excavated in the region, that broadly date to this period and these will be discussed here. The most comparable burial comes from Tongo in eastern DRC close to the border with Rwanda. The burial was excavated by Misago and Shumbusho (1992: 66-71) and was part of a larger necropolis consisting of approximately 60 skeletons. Unfortunately only one of these was archaeologically excavated, the others, and indeed the site, having been found and mechanically excavated during the construction of a road. The burial goods from the archaeologically excavated burial included two iron rings, one on the right leg of an adult skeleton and one on the left leg with a decorated Urewe pot fragment above the right knee, interred at a depth of approximately 2m (Misago and Shumbusho 1992: 70-71). Significantly, they also found an infant burial, in the same cut, approximately 1m above the adult, without any grave goods. Furthermore, the base of the grave cut was carved into the limestone bedrock below, being deliberately cut to make a cavity for the body. Thus, there are clear similarities between the Tongo burial and the Kabusanze burial; including the adorned adult and the unadorned infant, the inclusion of Urewe ceramics and iron rings and finally the carved cavity for the adult corpse. Unfortunately, further comparison is hindered because the Tongo burial was very briefly published. For example, it included no aging, sexing or pathology evidence and there were no illustrations or radiocarbon dates generated, although charcoal was present with the burial. However, the clear parallels between the graves suggest at least an anecdotal burial pattern by Urewe users in this locality, which indicates, very speculatively, that there was more social and symbolic connections between Urewe users than simply sharing a ceramic tradition.

The Tongo and Kabusanze burials are the only Urewe burials known of in this region. However, in southeast DRC another necropolis has been identified that has some broadly comparable features. The site of Sanga was first excavated by Nenquin (1963), followed by Hiernaux and Buyst (1971), and finally by de Maret (1977, 1985, 1992). De Maret also excavated comparable neighbouring sites at Katongo, Kamilamba, Kikulu and Malemba-Nkulu. In total 176 burials have been excavated at Sanga and these have been associated with three successive ceramic periods, the Ancient Kisalian, 8th - 10th century, the Classic Kisalian, 11th - 14th century, and the Kabambian 15th - 18th century (de Maret 1977: 328). Whilst these graves are later than the grave identified at Kabusanze and have other differences, such as the far greater number of grave goods in the Classic Kisalian graves, this necropolis is important here because it represents the greatest body of burial data from the Iron Age in the wider region. Furthermore, despite these differences there are important, but limited, similarities that should be highlighted. For example, the burials were filled with similar cultural materials including whole, well-made incised vessels, metal objects and beads. The grave goods from Sanga were also found arranged around and over the skeletons as they were at Kabusanze; and the tombs of children were numerous, even including the burials of children of premature birth (de Maret 1977: 323). Of particular note is the occurrence of two cowrie shells within an unusually rich grave (grave 172), which contained at least forty-four vessels, numerous jewels of iron and copper and an ivory pendant (de Maret 1977: 325). This rich grave has been dated to 1100-1290 AD (Hv 6613) and was suggested to be the grave of a high status individual based on the grave goods, including the exotic shells. Before the cowrie find at Kabusanze, this was the earliest known occurrence of a cowrie shell in central Africa. Unfortunately, in the absence of more closely related comparative material it is not possible to assign status to the individual buried at Kabusanze.

9.10 Rwandan Iron Age Burials

Other archaeological burials from the Iron Age in Rwanda include the Late Iron Age burials excavated at Ruli in central Rwanda (Nenquin 1967a) and the royal graves excavated by Van Noten (1972; 1983). Whilst the royal graves are broadly typologically comparable, containing ceramics, metals, beads and shells they are chronologically isolated and have more subtle differences. For example, the ‘17th

century' grave of Cyirima Rujugira (Fig. 4.28) was far more richly adorned with a much greater variety of grave goods than seen at Kabusanze, whilst the late 19th and early 20th century graves of Kigeri Rwabugiri and Reine-Mere Nyirayuhi Kanjogera contained only two long necked roulette-decorated vases (Van Noten 1983: 38-48). Moreover, all of the royal grave shafts were oblong in plan, unlike the Kabusanze grave that was circular and cut into the underlying geology. Clearly the graves are also chronologically separate with the royal graves dating to the early 20th century (even though some of the grave goods from Cyirima Rujugira are believed to date to the 17th century) whilst the grave from Kabusanze has been dated to over a thousand years earlier. However, an important comparison is the occurrence of similar cowrie shell beads in the grave of Cyirima Rujugira and the arrangement of the metal rings in a similar position by the side of the lower body to those at Kabusanze (Van Noten 1972: Plate XV).

At Ruli a collective burial (Hiernaux and Maquet 1960; Nenquin 1967a: 278) was found in association with twisted-string roulette decorated ceramics (B-Ware) and thus has been dated typologically to the Late Iron Age. However, the pottery and burial was not archaeologically excavated, being recovered as part of a construction project, and the apparent association with the ceramics, along with the report, was communicated by a local priest who had observed workmen in the area, reducing confidence in the interpretation of this burial (Hiernaux and Maquet 1960: 12-16). Within the burial were found two vessels filled with sorghum and peas (Hiernaux and Maquet 1960: 14). This perhaps points to a very late 2nd millennium AD date because these organic materials would not be expected to survive very long in central African deposition conditions. At Kabusanze palaeobotanical analysis was undertaken of the fill of the base of the burial cut but no remains were found. (The fill of the whole small pot is still awaiting detailed palaeobotanical analysis). Thus, this grave is of little comparative value but has been included here as the only other known archaeological Iron Age grave in Rwanda, further demonstrating the empirical value of the Kabusanze grave.

The discovery of the burial at Kabusanze raises two other important issues Firstly the potential of long-distance exchange in the Early Iron Age, at or before the 3rd - 6th centuries AD and secondly the continued deliberate deposition of Urewe ceramics as already noted at Tonga, but also at Lolui Island (Posnansky et al. 2005) and in western Kenya (Leakey et al. 1948).

9.11 Long Distance Exchange in the Early Iron Age

The single cowrie shell found in the Kabusanze burial, whilst of limited interpretive value due to its isolation and the lack of comparative material, is of great empirical value. For example, Vansina (1962: 376) has identified long-distance trade of cowrie shells in the 15th century AD recorded in central African histories, and there is earlier archaeological evidence for it at Sanga in the early 2nd millennium AD (see discussion above) and in Uganda at Ntusi (Reid 1990) and Kibiro (Connah 1996). Vansina (1962) records how caravan traders moving between markets brought these exotic goods into the Central African interior in the 15th century AD. However, we have no information regarding their earlier movement. Yet, based on the find frequency it is possible to posit some suggestions. For example, only two cowrie shells have been found at Sanga out of 172 excavated graves (de Maret 1977), and the shell from Kabusanze is the first of its kind in an Early Iron Age Great Lakes Africa context, suggesting that these rare finds were a by-product of other small scale exchange events and not an intensive operation. Thus, the cowrie find indicates that down the line trade, reaching from central Africa either across to the coast of eastern Africa, or to the west coast of central Africa, was occurring as early as the 3rd - 6th centuries AD and that this exotic, rare, item was of significant symbolic importance because it was interred in a burial along with other objects of value, such as whole pots and iron adornments. Moreover, this evidence suggests that the later, more intensive, interest in the coastal products by the communities of the central African interior began much earlier, well within the 1st millennium AD and not the 2nd millennium AD as previously believed based on the 11th century evidence from Sanga (de Maret 1977: 325) and from other sites such as Ntusi where cowries were found in a 13th century context (Reid 1990: 27).

Although this cowrie appears to be one of the earliest long distance trade artefacts found in Great Lakes Africa, it is not the earliest in the African interior. For example, Mutoro (1998) considered the evidence for long-distance exchange in pre-colonial east Africa and has identified cowrie shells, amongst other artefacts, found at a pastoral Neolithic site near Ngorongoro Crater, in Tanzania, as the earliest known long-distance exchange items in the interior of eastern Africa (Mutoro 1998: 190). Coastal objects have also been reported from Neolithic sites in Kenya, such as Nakuru (Leakey 1931: 281) and Hyrax Hill (Onyango-Abuje 1977) and from Pastoral Neolithic sites around Lake Turkana (cited in Mutoro 1998: 190). In the 1st millennium AD ceramics from the coast were also imported across eastern Africa, such as Kwale Ware (Soper 1967) and Tana Ware (Triangular Incised Ware) (Abungu 1989 and Chami 1994 cited in Mutoro 1998: 190) and Mutoro (1998: 191) has linked this 1st millennium AD trade with the demand for slaves and ivory, and growing prosperity on the Swahili coast. Whilst the Swahili coast prosperity at the end of the 1st millennium AD is too late to be a stimulus for the movement of the Kabusanze cowrie, it is possible that earlier trade in ivory and slaves may have had an influence.

9.12 Urewe Deliberate Deposition

The grave goods from the Kabusanze burial also represent an opportunity to study the deliberate deposition of material culture compared to the more common incidental deposition of archaeological remains as rubbish. The analyses of assemblages of ceramics that are the product of accidental or incidental deposition, have different interpretative limitations compared to those created by deliberate deposition. For example, some vessels are more likely to brake due to their manufacture or use, and these may be over-represented in domestic refuse assemblages and thus analysis of that assemblage may not accurately reflect the importance of particular vessel types. However, where vessels are deliberately deposited, even if the context of deposition biases the assemblage, it is possible to assess differing degrees of vessel importance within the worldviews of the users. This is particularly interesting in terms of Urewe ceramics where there are growing examples of deliberate deposition suggesting an important symbolic role for Urewe vessels in Early Iron Age societies, about whom we know very little.

Leakey et al. (1948) were the first to formally describe Urewe (dimple-based) ceramics following their work at Siaya, western Kenya and within this area they regularly encountered Urewe ceramics interred in pits. For example, at Urewe I, the largest pot they discovered was situated in a pit, extending through two separate deposits and they concluded it had been purposely buried in that position (Leakey et al. 1948: 13). At Yala Alego were found three Urewe "caches" and based on the broken, but complete Urewe vessels, Leakey et al. (1948: 14) suggest they were deliberately buried whole. One of the caches was overlain with stones, and another had stones laid at its base. Although no interpretation was suggested for these stones it adds another deliberate element to the vessels deposition. Leakey et al. (1948: 14) also suggest that the site of Yala Alego would have had more caches but they believe the area to have been heavily eroded. Unfortunately, the site assemblages from Siaya have been discussed in their totality so the significance of the particular vessel forms interred cannot be developed further.

Posnansky et al. (2005) have also identified potential deliberate deposition of Urewe ceramics at Lolui Island, Lake Victoria, Uganda. The high degree of deposition within rock nooks and crevices, which are too small to be living spaces, suggest that these ceramics must have been placed there deliberately (Ashley and Reid pers. comms. 2009). These sites are also associated with rock gongs (Chaplin 1974), an undated but prehistoric socially symbolic musical tradition (Posnansky et al. 2005: 75). Unfortunately, little more can be interpreted about these undated deposits and their association with the poorly understood rock gongs remains tenuous, if intriguing.

Finally, the most prominent example of the deliberate deposition of Urewe ceramics, outside of a burial context, is the interment of an Urewe 'medicine pot' beneath a furnace at Kabuye, which had another sherd as a lid. The purpose of the pot is not clear but based on ethnographic evidence Van Noten (1983: 14) suggests that it may have held medicinal herbs that would have aided the fertility, and productivity, of the furnace. A similar small whole pot, without lid, was recovered from the Kabusanze burial at the base of the adult upper torso and the project is awaiting palaeobotanical results from the fill of that vessel.

Contextualising the Kabusanze burial 'ceramic set' within these examples continues to demonstrate that Urewe played more then a simply functional role in Early Iron Age society in Great Lakes Africa, that has already been indicated by the high technological effort investment seen in the complex bevelled rims and impressive abstract motifs. Furthermore, in the absence of Urewe houses, living floors and other social information, the analysis of deliberately deposited Urewe ceramics presents another opportunity to study symbolic and practical aspects of Urewe users lives. For, example, not only does the Kabusanze 'ceramic set' demonstrate a symbolic Urewe value through its association with death, it may also reflect a more realistic proportion of vessels used or needed in domestic life because only one or two example of each Urewe vessel type found at Kabusanze was represented in the assemblage. It is definitely tempting, if highly speculative, to see this as a complete crockery set for an Early Iron Age individual.

Unfortunately, Urewe sites are not generally known for preserving good contextual data and it seems likely that other examples of deliberate deposition may have been missed simply because of a lack of clear contextual data.

9.13 Summary and Discussion

Unfortunately there is a lack of comparative material for both the burial and the subsistence economic evidence from Kabusanze. However, it is believed that when taken together these archaeological materials have an important interpretative value. For example, the palaeobotanical remains suggest that the Urewe users at Kabusanze had access to cultivated domestic cereal grains. However, far from creating a stable food source for the population, the adult skeletal remains suggest that there were at least times of extreme nutritional deficiency (see Appendix 1). For example, the pathologies associated with adult dentition, such as the caries, indicate times of scarce resources in childhood. However, this individual received a complex and potentially rich, high status burial, suggesting that he was of sufficient status in life to have access to the same food supply as the majority of the community. Thus, this evidence of nutritional hardship may help to explain why foraging practices were retained alongside new mixed farming strategies such as small stock raising and agriculture (see Chapter 4 section 4.10) as communities sought to avoid risks associated with crop failure. Suggesting that the successful transition to farming in Great Lakes Africa was not always simple but could be a long complicated process of risk management.

The burial also has wider implications within the presentation of this proposed by historical linguistic studies. For example, Schoenbrun (1998: 114) has proposed that this period of greater technological expertise, attested by specialised smelters and ceramicists, must have been supported by surpluses in agricultural produce (although technological specialists may have practised their crafts seasonally when work in the fields was minimal). This he suggests has implications for understanding growing concepts of wealth, and in turn power, and group cohesion during this period. Schoenbrun (1998: 114) also suggests that:

> "Actual archaeological recognition of concentrations of wealth, currencies, or other symbols of surplus production might come with the excavation of Early Iron Age burials, should archaeologists be fortunate enough to locate any."

Within this context then the Kabusanze burial, and site in general, are highly significant. Whilst it is difficult to attribute a status value to the burial in the absence of more comparative material, it does appear to have material and symbolic wealth associated with it due to its interment with whole or near whole Urewe vessels, whole iron objects and other adornments, including a long-distance exchange artefact. This can be compared again to the grave from Tongo (Misago and Shumbusho 1992) where the adult skeleton was found with iron rings and whole Urewe vessels. Thus, based on this anecdotal evidence it is suggested that wealth did exist during this period, which may be related the concepts discussed above by Schoenbrun (1998: 114). However, the pathologies suffered by the adult male from the burial suggest that a food surplus was not always present and thus cannot be taken for granted.

This summary discussion has taken tentative steps into the socio-political organisation of Urewe using peoples c.400 AD in southern and northern Rwanda. However, much more work is needed to create a comparative body of data through which these ideas can be explored further. For example, the successful test-excavation unit at Kabusanze should be returned to, re-excavated and expanded in order to see if more graves associated with Urewe ceramics exist.

These issues of ceramic variability and subsistence economic practices will now be explored at Karama in central Rwanda in a subsequent chronological period.

9.14 Late Iron Age Transition and Broader Relevance

Related Research Question: were Classic Urewe ceramics rapidly replaced by roulette-decorated ceramics in Rwanda, or did a transitional phase exist as seen elsewhere?

The radiocarbon sample from Karama dates the fill of the large conical pit to the 7th to 9th century AD (Fig. 9.1), the transitional phase already identified in other areas of Great Lakes Africa, between the Early and Late Iron Age (e.g. Ashley 2005). The research was also able to directly target the Musanze caves and neighbouring Virunga caves to investigate Van Noten's (1983) often-cited early dates for roulette-decorated ceramics in Rwanda. New dates generated by this research suggest a more conservative interpretation of these dates is now appropriate. The significance of these dates is discussed in detail below.

Outside of Rwanda, in Kenya and Uganda, recent research has established an association between the decline of Classic Urewe, into a devolved form, and an archaeological hiatus, or transitional period, between the Early and Late Iron Age (Ashley 2005; Posnansky et al. 2005; Reid and Ashley 2007). Until now, this phase has not been identified in Rwanda, instead the cultural change from the Urewe using communities of the Early Iron Age to the roulette using ones of the Late Iron Age has been presented as abrupt (Van Grunderbeek 1992: 61). However, the results of this research suggest that this transitional phase also exists in Rwandan archaeology but has not been identified partly because of a skewed reading of the radiocarbon dates for roulette-decorated pottery, alongside a more established acceptance of the Early/Late Iron Age dichotomy. For example, Clist's (1987: 35) critical reappraisal of the Early Iron Age Urewe industry places the end of the Early Iron Age Urewe using period in the mid 7th century AD, whilst analysis of the Late Iron Age in Rwanda place the earliest roulette-decorated dates in the 8th and 9th centuries AD (e.g. Van Noten 1983: 35; Van Grundebeek 1992: 61, 69). However, such presentations are based on a selective interpretation of the radiocarbon results that opt for the earliest possible margin for two isolated roulette dates (Fig. 9.6).

Site Name	Sample No.	Date	Calibrated (2 sigma)
Cyamakuza	GrN-9669	1210 ± 45 BP	680 - 900 AD
Akameru	GrN-7671	1075 ± 95 BP	720 - 1170 AD
Gisagara II	GrN-9661	925 ± 30 BP	1020 - 1180 AD

Fig. 9.6 Table showing the early radiocarbon dates for roulette-decorated pottery in Rwanda

Other, more critical, approaches to these dates (e.g. de Maret 1977) have ruled out the earliest date from Cyamakuza suggesting it to be erroneous, the result of possible contamination. Additionally, they have highlighted the high degree of error present in the later sample from Akameru (GrN-7671) that if calibrated to 2 sigma could fall anywhere between the 8th to the 12th centuries AD. This date has been directly investigated during this research by generating radiocarbon dates from the earliest deposits in two caves neighbouring Akameru, Musanze II and III, and three dates from the earliest deposits in comparable caves from the local vicinity, Nguri Cave and Mweru Cave. The results from this investigation are remarkably consistent and place the earliest occupation of these caves in the 11th to 12th centuries AD. The date from Akameru overlaps this range and it is suggested here that it would be unlikely for Akameru to have been occupied significantly earlier than its large neighbours, that contain very similar archaeological assemblages, which are situated not more than a 100m apart. Thus, it is suggested that the interpretation of the earliest roulette-decoration in Rwanda should be shifted approximately 300 years later than in previous presentations. If this were done there would be a similar gap between the end of the Early Iron Age in the mid 7th century AD and the appearance of roulette-decorated ceramics at the beginning of the 2nd millennium AD, as has been identified in neighbouring countries (Clist 1987; Van Grunderbeek 1992).

Although a re-calculation of the dates for the material from the Virunga Caves suggests that there is a gap between the decline of Classic Urewe ceramics in Rwanda and the appearance of roulette decorated material, it is not evidence for a transitional period alone. For example, in the absence of other material from that period it may represent a period of depopulation, as suggested by Wotzka (2006), or simply that the archaeological record has been incompletely studied. However, the single date from the large conical pit in association with a potential devolved from of Urewe from Karama (see Chapter 7 section 7.4), dating to this intervening period, suggests that a similar transitional period to those identified outside of Rwanda (e.g. Ashley 2005; Posnansky et al. 2005) may also have occurred in parts of Rwanda. Other comparable non-Urewe incised ceramics have also been identified in Rwanda (e.g. Van Noten 1983) from deposits dating to this intervening period (Fig. 9.7). These ceramics will be discussed in more detail below as the argument for a transitional period in Rwanda is developed further.

Site Name	Sample No.	Date	Calibrated (2 sigma)
Kabuye II	GrN-7904	1405±35 BP	600 - 670 AD
Kabuye XV	GrN-9667	1490±55 BP	430 - 650 AD
Mutwarubona II	Ly-2268	1380±170 BP	270 - 1000 AD

Fig. 9.7 Table showing the radiocarbon dates for 'non-Urewe culture Early Iron Age ceramics' in Rwanda

9.15 Transitional Ceramics in Central Rwanda: Karama

Related Research Question: What happened to Urewe at the end of the Early Iron Age?

There were three types of archaeological ceramic identified at Karama, including Classic Urewe sherds, a separate incised and impressed ceramic and roulette-decorated ceramics. The Urewe sherds were very rare and were not found during excavation but were identified on the surface of the road during survey. The roulette-decorated sherds were recovered during excavation but were found in the upper levels within deposits that had been disturbed by recent cultivation. Whilst the presence of these two ceramic types suggests that the hilltop at Karama was inhabited during both the Early and the Late Iron Age they are otherwise unremarkable due to their lack of contextual information. However the incised/impressed ceramics that were recovered from both of the two pits, one of which has been radiocarbon dated to the 7- 9th centuries AD are believed to be significant. These ceramics do not fit with Classic Urewe, nor are they similar in fabric or decoration to roulette-decorated Late Iron Age ceramics. Furthermore, chronologically they fall within the archaeological hiatus discussed in Chapter 4 (section 4.3) and thus potentially represent a transitional, post-Urewe, ceramic.

The incised/impressed ceramics from the pits at Karama have been discussed in detail in Chapter 7 (section 7.4) but the salient results are summarised here:

The fabrics from the large conical pit included G1 (35%), G2 (21%), G4 (29%) and miscellaneous (15%). Whilst there was more variation in the shallow pit this assemblage was very fragmented with 52% miscellaneous, which complicated confident fabric attributions. Seven reconstructable vessels were recovered from the conical pit, which included four hemispherical bowls, one open bowl, one flared mouth bowl and one beaker. Only one jar was found within the total reconstructable assemblage from Karama (23 vessels). There were no bevelled rims identified, instead the majority of the assemblage was made up of simple rounded rims. The pit ceramics displayed crude incising, fingernail impressions and punctates (Figs 7.13 and 7.14).

Although the incised/impressed ceramics from the pits are broadly comparable to Classic Urewe through the use of incised cross-hatching and punctates and a range of vessel forms, with a limited fabric range, they are clearly distinct. For example: the application of decoration is not to the same standard as would normally be expected on Classic Urewe vessels, the most difficult to execute forms, such as jars, are almost non-existent, and the fabric range is broader and coarser than expected with Classic Urewe. Furthermore, although Classic Urewe, with complex bevelling and cross-hatching was found during surface survey, the dating of the incised/impressed assemblage from Karama puts it at the extreme end, or outside of, the accepted date range for Classic Urewe in the 7th to 9th centuries AD, but well before the dates for the start of the Late Iron Age in Rwanda, early 2nd millennium AD. Thus, it is suggested here that these ceramics are a devolved form of Urewe, particular to Karama, that represent a window into the terminal 1st millennium AD archaeological hiatus already identified outside of Rwanda (e.g. Ashley 2005).

Work in neighbouring Uganda (Ashley 2005; Posnansky et al. 2005) has established the existence of devolved Urewe ceramics at sites on the shores of Lake Victoria (see Chapter 4 section 4.5). Whilst the ceramics identified at Karama do not match Posnansky's (et al. 2005) or Ashley's (2005) "devolved Urewe" material from Lolui Island, or the incised material identified during this research from Masangano, it does not mean that they are unrelated phenomenon. Posnansky and Ashley argued that their devolved Urewe was the result of a lowering of investment and a loss of skills by the Urewe producers during the terminal 1st millennium AD, that was probably related to other wider, but as yet poorly understood, socio-political changes happening around this time in Great Lakes Africa (Posnansky et al. 2005: 87). However, whilst devolution may have been related to wider more general processes the specific results will differ at each location. Thus devolved Urewe cannot be narrowly defined but can be described as a reduction in technological investment resulting in the loss or simplification of bevelling, burnishing, dimple-bases, complex vessel forms, such as jars, and execution of complex decorative motifs. It is believed that a similar process may have taken place at Karama. At some point the hilltop at Karama was occupied by Classic Urewe users, as suggested by the surface assemblage, but around the time of Urewe decline after the end of the 7th century AD (Clist 1987) a ceramic assemblage without jars, a less well defined fabric range, crude cross hatching and fingernail impressions was created at the site.

This section will now briefly return to the evidence for the existence of devolved Urewe outside of Rwanda before discussing other ceramics from various Rwandan sites that may be better understood through a late 1st millennium AD devolved model.

9.17 Devolved Urewe

Posnansky (1961b; et al. 2005: 73-100) studied the ceramics from Lolui Island in Lake Victoria, Uganda, and was the first to suggest the existence of a devolved form of Urewe (also see Chapter 4 section 4.5). Posnansky et al. (2005: 85-88) compared two types of Urewe from Lolui (devolved and Classic Urewe) and highlighted the similarities in basic style of the two types alongside differences in technological investment, such as reductions in the number of complex bevelled rims, a reduction in complex vessel forms, features and decoration, such as jars, dimple bases and decorative channelling, and the appearance of poorly executed cross-hatching, and non-parallel incised lines (Posnansky et al. 2005: 86). Unfortunately, the devolved material from Lolui lacks absolute dates, so the relationship between the producers of devolved Urewe and Classic Urewe is not fully understood. However, Posnansky et al. (2005: 87) suggest that the devolved material is most likely the result of chronological change and temporal variation and are not contemporary phenomenon because the island is too small to support two separate ceramic traditions at one time (Posnansky et al. 2005). Similar degeneration of fabric and coarsening of decoration at lakeshore sites such as Sanzi and Luzira (Reid 2002; Ashley 2005; Reid and Ashley 2007) indicate this was being replicated at a larger regional scale. Radiocarbon samples from that research date this period of change to the late 1st millennium AD, at the same point where there is a decline in Urewe sites

(Clist 1987). Recent work at Lutoboka on Bugala Island, Uganda, also provides a late 1st millennium date for this material (Ashley 2005; Posnansky et al. 2005: 89). This definition of devolved Urewe matches well with the material from Karama, which is also dated to the terminal 1st millennium AD and exhibits a similar reduction in technological investment compared to the surface Classic Urewe remains found at the site. The Karama material is of particular note within this devolved context because previous examples of devolved Urewe have all been on the shores of Lake Victoria, suggesting that it is a lake bound phenomenon. However, the example from Karama and the potential material from Masangano suggest it is part of even wider cultural processes.

9.18 Devolved Urewe in Rwanda?

The suggested devolved Urewe ceramics from Masangano and Karama are the first to be identified in Rwanda, which may be because the devolved model has never been applied there. However, a review of the available archaeological ceramic literature and published illustrations suggests that devolved ceramics may have already been encountered on numerous occasions but have not been formerly identified as such, instead being termed "non-Urewe incised ceramics" or "C-Ware" (Hiernaux and Maquet: 1960; Nenquin 1967a; Van Noten 1983). The failure to identify a cultural relationship between these ceramics may be because of their morphological differences that would usually mask their broad technological similarities within a non-*chainé operatoire* approach to ceramic analysis and definition. Instead by employing a Posnansky et al.'s (2005) devolved model their differences can be better understood as a process of devolution or transition taking place in differently in various locations creating subtle variations in the ceramics, as suggested for Masangano and Karama. This section will now consider other Rwandan ceramics that may be related to this phenomenon briefly mentioned already in section 9.4.

Two groups of Iron Age archaeological ceramics are of particular note here, "C-Ware" (Hiernaux and Maquet 1957, 1960; Nenquin 1967a, 1967b) and "non-Urewe incised wares" (Van Noten 1983; Van Grunderbeek 1992) amongst other miscellaneous incised examples (Simon 1983). The majority of these poorly understood ceramics have not been absolute dated and whilst many have been attributed to the Early Iron Age (Van Noten 1983; Van Grunderbeek 1992) others have been considered to be recent (e.g. Van Noten 1983) based on the better understood surface material that they have been found mixed with, such as Classic

Urewe or roulette-decorated ceramics. However, in light of the work by Ashley (2005) and Posnansky et al. (2005), and the absolute date generated for similar material identified during this research at Karama, these ceramics should now be reconsidered.

'Non-Urewe' Early Iron Age ceramics have been identified by Van Noten (1983) and Van Grunderbeek (1992) at Kabuye II and XV and Mutwarubona, and have already mentioned in relation to the results from Masangano. The dates from these sites fall within the terminal 1st millennium AD and their association with earlier ceramics such as Urewe at all of the sites has been established. Furthermore, the description of these roughly incised ceramics (e.g. Figs. 4.9 and 4.10) puts them well within the devolved Urewe ceramic model. However, the relationship between "C-Ware" ceramics and the Early Iron Age is less well understood. This term has been used within Rwanda to describe a broad group of poorly understood incised ceramics (Nenquin 1967b), and should not be confused with Van Noten's (1983) "C-Type" that he defined as Late Iron Age knotted-strip roulette-decorated ceramics. Hiernaux and Maquet (1960: 68) first coined the term "C-Ware" at Nyirankuba in Rwanda to describe a ceramic showing rare parallel incisions, square impressions, fine grained temper, pots or bowls with closed opening, and a relatively thin wall thickness compared to "A-Ware" (dimple-based or Urewe ceramics) and "B-Ware" (roulette-decorated ceramics), that displayed restricted decorative styles and vessel forms. Nenquin (1967b: 652) also noted the presence of cross-hatching and bird bone impression. Hiernaux and Maquet (1960: 69) noted that the ceramic is not totally dissimilar to either "A-Ware" or "B-Ware" but is most similar to "A-Ware". Hiernaux and Maquet (1960) offered no interpretation of "C-Ware", nor did later summaries of Rwandan ceramics (e.g. Nenquin 1967a, 1967b, 1971), yet in the absence of any absolute dates, and despite a consistent site based relationship with Urewe, Nenquin (1967b: 652) suggested it was a recent ceramic. Whilst it is too early to lump "C-Ware" with devolved Urewe, because of a lack of good contextual data and absolute dates, the basic comparison between decorative styles, the association with Urewe sites, such as Nyirankuba, and the similarity with the dated material for Karama leads this research to tentatively suggest that some "C-Ware" ceramics may be related to the processes of Urewe devolution.

The remaining notable sites with incised/impressed ceramics in Rwanda come from Bugarama and Kiguhu on the lakeshores in Northern Rwanda (Simon 1983). At Kiguhu a few sherds from two reconstructable incised vessels were recovered from the surface of a marsh (Fig. 4.12). These ceramics are notable for their incised herringbone decoration and the broad dimple on the base, which has also been noted in Posnansky et al.'s (2005) devolved Urewe ceramics from Lolui. Simon (1983) has compared the ceramics from Kiguhu to those from Mubuga III in Burundi that were dated to the 3rd century AD and to the finger impressed Urewe vessels from Ruhimangyargya (e.g. Nenquin 1967a: 261; Van Noten 1983). A larger ceramic assemblage was excavated from stratigraphically well-defined deposits at Bugarama including a deposit with crudely incised ceramics that was found beneath a deposit with roulette-decorated ceramics. Simon (1983) compared the Bugarama ceramics with the roughly incised ceramics from Masangano, to which they have a strong decorative resemblance. Unfortunately, an attempt during this research to increase these assemblage sizes and to collect dating materials through excavation at Kiguhu and Bugarama was unsuccessful (described in more detail in Chapter 8 section 8.2). Therefore, despite broadly conforming to a devolved Urewe model and pre-dating roulette-decorated ceramics, in the case of Bugarama, due to a lack of absolute dates and an absence of Classic Urewe at these sites the interpretation of these ceramics and their association with a transitional Iron Age period remains intriguing but highly speculative.

9.19 Summary Discussion

In summary then, this research suggests that the ceramics from Karama and many of the other incised/impressed "non-Urewe ceramics", including "C-Ware", from Rwanda may be related to the devolved Urewe ceramics already identified in Great Lakes Africa (e.g. Posnansky 1961b; Ashley 2005; Posnansky et al. 2005). Suggesting that devolved Urewe can no longer be considered just a lake phenomenon but was part of larger region wide changes. As has already been established in Chapter 4 section 4.3, little is known archaeologically about this terminal 1st millennium AD archaeological hiatus. Thus, to offer some explanation for this regional ceramic phenomenon these results will be compared with presentations generated by historical linguistics.

Schoenbrun (1998: 123-253) in his summary of the period from c.800 to 1500 AD in Great Lakes Africa notes that this was period began with various processes of regional change and has characterised these into three geographical zones: the Kivu Rift Valley, in which Rwanda is included, the savannah to the east and finally the area immediately between the savannah and Lake Victoria. Shoenbrun (1998: 123) suggests that the beginning of the 9th century AD in the Kivu Rift Valley saw the appearance of new forms of specialised farming, such as pastoralism and banana cultivation agriculture that changed the social world of the regions inhabitants. Resulting in the creation of new social institutions to manage emerging gendered identities associated with the appearance of these subsistence activities and to negotiate new power structures between various stakeholders.

The linguistic data suggests that this situation was mirrored on the western shores of Lake Victoria where new strategies were embarked upon following the end of period of climatic after c.500 AD and imposition of periods of alternating high and low rainfall (Schoenbrun 1998: 124). These new environmental stresses encouraged the development of risk management strategies, which again saw new the rise of new political structures emphasising the rights of first-comers over newcomers to ensure land and labour rights, where previously all comers had been welcomed equally. Finally, Schoenbrun (1998: 125) suggests that it was this environmental uncertainty and the development of new institutions drew some of the inhabitants of the Kivu Rift Valley and the western lakeshores into the savannah between 900 and 1100 AD, leading to the establishment of grassland sites such as Ntusi, Munsa and Mubende Hill.

Thus, the linguistic evidence suggests similar historical situations were taking place on either side of the savannah c.800 AD that ultimately produced similar results in terms of settlement shift and the development of more specialised forms of farming. However, it is suggested here that during the early phase of this period, broadly termed the terminal 1st millennium AD, due to experimentation, innovation and the creation of new social institutions, suggested by the historical linguistics, significant changes took place in the social world of this regions inhabitants along localised trajectories, at least initially. Furthermore, it is suggested here that the changing roles, perhaps associated with changes in gendered identities, resulted in less effort expenditure in socially embed technologies such as ceramic production. Perhaps compounded by the involvement of new inexperienced potters from the community becoming involved as the organisation of production changed.

Whilst this remains highly speculative it may explain why devolved or transitional Urewe styles appear to exist both in Rwanda, away from the lakes as suggested by this research and also by the western edge of Lake Victoria as suggested by Posnansky et al. (2005). The following section will now discuss the subsistence evidence from Karama, which suggests that at this early stage in the transition mixed farming was still being practised in central Rwanda.

9.20 Karama 600-900 AD: Mixed Subsistence

Before this research, with the exception of three cattle molars from southern Rwanda (Van Noten 1983; Van Grunderbeek 1981; Van Grunderbeek et al. 2001: 273-275; Van Grunderbeek and Roche 2005), the earliest known domesticated cattle and small stock bones in Rwanda were found in early 2nd millennium AD contexts at Cyinkomane and Akameru (Gautier 1983: 104-120). Furthermore, although hunting is assumed to have existed during the Early Iron Age in Rwanda based on the linguistic evidence (Ehret 1998: 123-124; Schoenbrun 1998: 66-68) there was no direct evidence (Van Grunderbeek and Roche 2007: 305). The earliest Iron Age zooarchaeological hunted remains identified so far have again come from Cyinkomane and Akameru, dated to the early 2nd millennium AD (Gautier 1983).

The charcoal from the large conical pit has been dated to the 7th-9th centuries AD and by association so have the palaeobotanical and zooarchaeological remains from that feature. The shallow pit did not have absolute dates generated, due to funding constraints, but contains the same incised/impressed, devolved Urewe, ceramic and thus is believed to be contemporary with the larger pit. The palaeobotanical samples from the pits revealed charred finger millet seeds (*Eleusine coracana*) (Fig. 9.8). These are the earliest macro remains in Rwanda and they continue to support the suggestion that small-scale non-intensive cultivation of domestic cereal grain existed in the 1st millennium AD in Rwanda.

Site Name	Sample	Context Type	Specimens	Date
Karama	3	Conical pit fill	Finger millet	688 – 877 AD
	4	Shallow pit fill	Finger millet	Middle Iron Age

Fig. 9.8 Table showing the palaeobotanical results for Kabusanze

Zooarchaeological remains were identified at Karama in both of the pits. Unfortunately, the single large bovid vertebrae from the shallow pit could not be identified to species. However, in the large conical pit fill there was a range of specimens identified to species, including: specimens from domesticated *Bos taurus*, with one showing butchery knife marks, alongside individual specimens from giant forest hog (*Hylochoerus meinertzhageni*), leopard (*Panthera pardus*) and antelope (*Antilopinae*). This assemblage is too small to be used to make assumptions about the scale of either hunting or herding. However, it does demonstrate that during the terminal 1st millennium AD the occupants of Karama had contact with both wild and domesticated resources. Whilst the giant forest hog and antelope may have been hunted for food the existence of the leopard tailbone is less easy to explain. Leopard, being a carnivore, is normally not presumed to be part of the diet because it has a low meat yield and would be dangerous and difficult to hunt, and potentially unpleasant to eat, being tough carnivore meat. Thus, it is more likely that it was brought to the site for its skin.

Although limited in size, this subsistence assemblage from Karama supports the suggestion, put forward by linguists (e.g. Schoenbrun 1998) and indirect evidence, that populations in the 1st millennium AD were practicing, or exploiting a mixture of subsistence strategies. This same issue will now be explored in more detail for a very different and more extensive set of material from the Late Iron Age Virunga Caves in Northern Rwanda.

9.21 Cave Dwelling: 2nd Millenium AD Alternative Histories

Unfortunately during the course of this research no undisturbed, well-stratified archaeological sites were encountered with a ceramic sequence including both Early and Late, or indeed transitional, Iron Age ceramics. This situation prevents the research from exploring the potential for continuities in the ceramic record between these periods, such as in manufacturing techniques and vessel form, alongside the more obvious discontinuities, such as the appearance of rouletting. Whilst tempting, it is inappropriate to link deposits from potentially unrelated sites. However, due to the deep and well-stratified deposits excavated in the Virunga Caves, believed to date from the beginning of the 2nd millennium AD to the 19th century, it has been possible to explore ceramic continuity and variation within the Late Iron Age. The results of this analysis have shown that within these cave contexts there is a high level of ceramic continuity between caves and between deposits but that late in the 2nd millennium a new, high quality, potentially imported, ceramic appears.

The archaeological assemblages excavated from all of the caves bear a high degree of similarity and broadly conform to the results of Van Noten's (1983: 34-35) excavations in Akameru and Cyinkomane, two of the other Musanze Caves. Surface collections of ceramics from other caves of the same geological group as the Virungas across the border in Uganda reveal similar, but limited results (Grace 1990: 87–90). Thus, due to the high degree of material culture compatibility between the caves combined with the consistent radiocarbon dates and stratigraphy the results from these caves will be considered together here.

9.22 Roulette-Decorated Ceramics in the Virunga Caves

Related Research Question: Can meaningful variation be identified within roulette-decorated ceramics?

The ceramics identified within the Virunga Caves consisted entirely of roulette-decorated Late Iron Age examples. The earliest deposits for these caves were dated from the 11th to 12th century AD (cal 2 sigma) and although later deposits were not dated it is believed, based on historical reports (e.g. Nenquin 1967a: 274; Grace 1990; Vansina 2004), and the small finds encountered during this research (see Chapter 8), that the caves continued to be occupied until the late 19th century AD. Furthermore, informal interviews with locals taken during the course of this research suggest that the caves were not occupied as living spaces during the 20th or 21st centuries, although they were occasionally used as boltholes during 20th century conflicts. Thus the ceramics from the Virunga Caves present an interesting opportunity to study the roulette-decorated ceramics of northern Rwanda from the 2nd millennium AD and to see if through multi-variant analysis socially meaningful ceramic patterns can be identified within the Late Iron Age roulette-decorated muddle.

The ceramics from the Virunga Caves have been described in detail in Chapter 8 but the salient features of this analysis will be summarised again here. The cave ceramics included a wide range of fabrics. However, in all but one case, Mweru Cave, a single fabric dominated the assemblages. There was little stratigraphic distinction between the fabrics in the cave deposits with only a fine black burnished ware confined to particular, upper, more recent deposits. The morphological profile was dominated by large jars with twisted-string roulette decoration, whilst rare knotted-strip roulette-decorated ceramics occurred in the most recent deposits. A range of rims existed in all of the caves including, rounded, tapered, squared, folded and thickened, and handles were present in all of the caves but found in low quantities throughout the deposits.

Although a comprehensive, *châine opératoire* multi-variant approach was applied to the ceramics from the Virunga Caves it revealed few consistent patterns. For example, there was no particular preference for roulette-decoration or placement of rouletting (in terms of interior and exterior rouletting), and the vessel fabric and form range was broad. However, there were correlations between form and fabric, for example at Nguri cave, fabric 3R2, 3R5, 3R7 and 3R8 were used to make jars whilst the remaining fabrics were confined to bowls. Similar, although less pronounced distributions were seen in the other caves too. These results suggest that a similar and related, but unspecialised, ceramic tradition existed between the caves and that ceramics were produced by small scale domestic production utilising local clay sources. An exception to this is a potential ceramic import that may be related to the Kingdom Era in the late 2nd millennium AD. However, it should be noted that the Virunga caves are only one isolated element of the roulette-decorated ceramic phenomenon. Thus, it may be possible for future studies to tease out patterns from other regions, or indeed to compare the Virunga assemblages to other definable groups of sites and identify significant differences.

9.23 A Ceramic Import?

The most significant ceramic pattern identified within the Virunga Cave ceramics was the occurrence of the fine black-burnished ware in the upper deposits of four of the Virunga Caves. This ceramic is distinct from the remaining assemblage in its fabric, decoration, wall thickness, colour, inclusions and overall execution. The ceramic is also functionally distinct being restricted to bowls, usually hemispherical or closed bowls. However, rare examples of beakers and tapered bowls also exist at Musanze IV. This ceramic is also quite rare, it only accounts for 1% or less of each ceramic assemblage. Unfortunately none of the deposits where this sherd was identified were radiocarbon dated so it has not been possible to establish an absolute date.

In order to arrive at a more precise date comparative material has been sought from other Late Iron Age sites in the region, which has produced mixed and inconclusive results. For example, illustrated within Van Noten's (1983) excavated assemblage from the grave of Kigeri Rwabugiri, who died in 1895, there are two vessels with very comparable decoration (e.g. Fig. 9.9). However, their forms, closed vases, are very different. More significantly, a comparable fine-ware ceramic was excavated from a Late Iron Age site, radiocarbon dated to 17th - 19th century, on the Rusizi Plain in Burundi (Meulemeester and Waleffe 1973: 16-23). This ceramic from the second most recent deposit was thin walled between 4-8mm and has very fine twisted-string roulette-decoration running in a variety of directions (Meulemeester and Waleffe 1973: 20). Unfortunately no rims, or reconstructable vessels were identified at the Rusizi site so they cannot be compared here. Examples were also sought from Ryamurari, the 17th century capital of the Ndorwa Kingdom, situated within the borders of modern Rwanda, but no similar material was found although high quality ceramics of a similar standard do exist (Tshihiluka 1983).

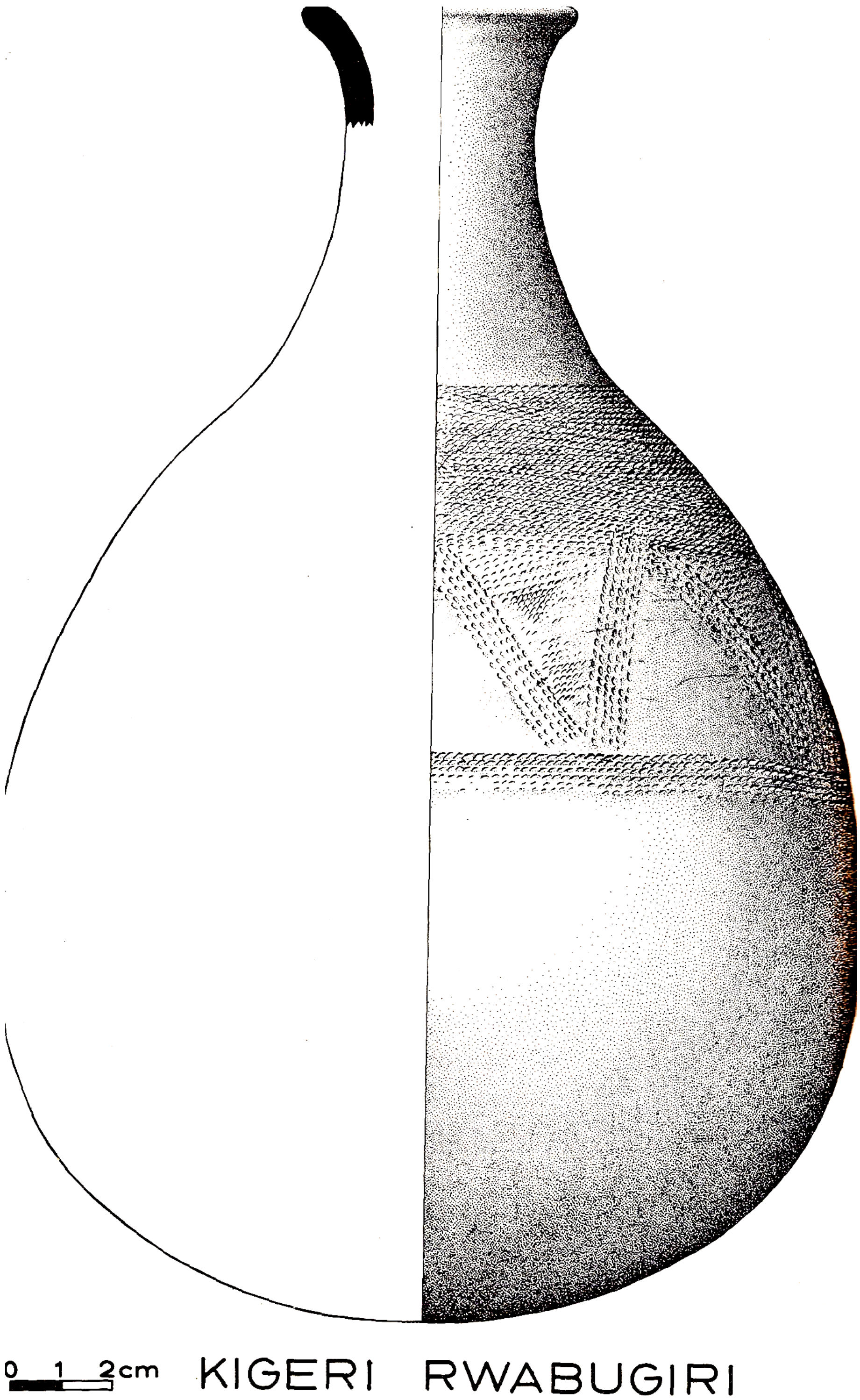

Fig. 9.9 Illustration showing fine twisted-string roulette-decorated vessel from Kigeri Rwabugiri's grave, Rwanda (reproduced from Van Noten 1983: Plate 58)

However, Desmedt (1991: 185-192) has identified a very similar ceramic from Dahwe in southern Rwanda that she has termed "Group Y" (see Chapter 4, section 4.6 of this thesis for earlier discussion). This luxury ceramic has very thin walls, fine twisted string horizontal rouletting, commonly on black burnished ware, with slightly everted rims on hemispherical bowls (Desmedt 1991: 172) (e.g. Figs 9.9 and

9.10) and thus are virtually identical to those discussed here from the Virunga Caves (Fig. 8.97). Desmedt (1991: 187-188) suggests that this ceramic is present at a range of sites in western Uganda including Kibiro, Bigo and Bweyore, amongst others. However, from her discussion it is not clear if she is referring to her "Group-X", knotted-strip roulette decorated ceramics or actual "Group-Y" because she does not always distinguish between the two. Furthermore, reviews of the excavation reports from these sites (e.g. Connah 1996, 1997; Reid 2002) and discussions with more recent excavators of some of these sites (e.g. Andrew Reid pers comm. 2009) have failed to positively identify similar ceramics as those she describes from Dahwe. Indeed it appears that Desmedt (1991: 187) based many of her identifications of "Y-Group" on pipe stems and whilst these may be related it is not believed this relationship has been sufficiently established as to prove the unity of these two forms conclusively.

Fig. 9.9 Photograph showing "Group-Y" ceramic, Dahwe, Rwanda (Desmedt 1991: 166, Fig. 6)

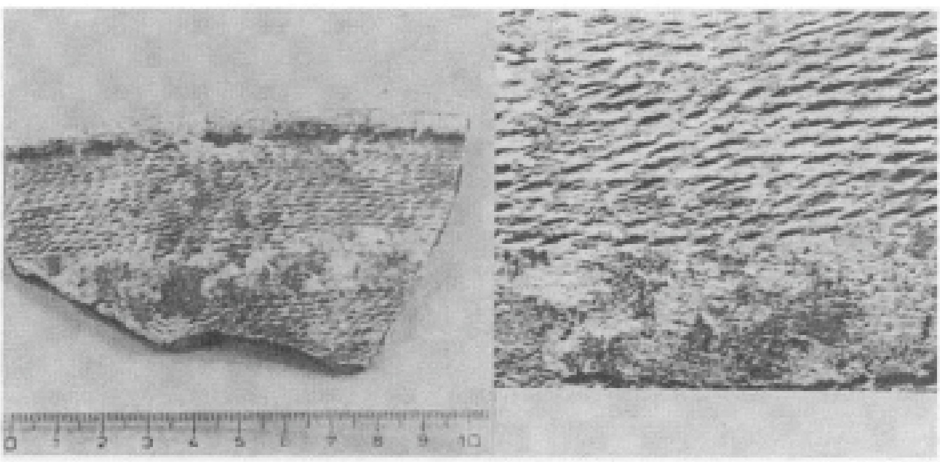

Fig. 9.10 Photograph showing "Group-Y" ceramic, Dahwe, Rwanda (Desmedt 1991: 166, Fig. 7)

Thus, in the absence of more comparative illustrations black burnished fine ware, or "Group-Y" has only been positively identified at the Rusizi Plain in Burundi, Dahwe in Southern Rwanda and the Musanze Caves. Vansina (2004: 21) has discussed the appearance of this "luxury ceramic" and believes "it directly attests to the emergence of a true elite during the seventeenth century." Based on Desmedt's (1991) suggestion that this ceramic arrived in Rwanda from the north and came from western Uganda Vansina (2004: 21) tentatively suggests that the appearance of these luxury vessels reflects the creation of a kingdom in central Rwanda in the 17th century by a group coming from the north that did not alter the bulk of the population. However, in the absence of more dated sites, Vansina suggests that this proposal cannot properly be evaluated. More over he suggests (Vansina 2004: 21) that it is, "just as probable that even the luxury ceramic Y spread by imitation from center to center without any migration, not even by new political leaders." Thus, even without questioning Desmedt's (1991) sites in western Uganda, Vanisna questions Desmedt's migration conclusions. Therefore, since this thesis questions the confidence of Desmedt's typology and definition of "Group-Y" this explanation cannot be entertained further here. However, the appearance of this luxury ceramic at a time when the kingdom of Rwanda is believed to have emerged in central Rwanda is a strong co-incidence and suggests wealth was becoming more concentrated and was being expressed within through ceramic production and use.

A luxury ceramic, associated with the appearance of the kingdom and wealth, but only found in very small quantities in the caves suggests that these were not made by the cave occupants, as the cruder more frequent wares may have been, but instead represent a trade, or imported ceramic. If this was the case then it suggests trade items were travelling in the opposite direction too. Unfortunately, whilst this is not unlikely, in the absence of comparably dated non-cave farming sites nearby, we cannot explore this. However, the cave assemblages provide further evidence of interaction and possibly trade within the zooarchaeological assemblage, discussed below.

9.24 Virunga Caves 1100 to Recent: forager-farmer relations

The zooarchaeological remains recovered from the Virunga Caves during this research were broadly similar to those excavated by Van Noten (1983), and analysed by Gautier (1983: 104-120), from Cyinkomane and Akameru, two of the Musanze caves also within the Virunga group. Both contained similar domestic species and a wide range of wild specimens consistent with a forest environment (Fig. 9.11). Van

Noten (1983) did not attempt palaeobotanical sampling during his excavations but indirect evidence of grain use was identified in the form of grinding stones. This was supported by the identification of more grinding stones and pounding stones during this research and by direct evidence in the form of charred and calcified domesticated cereal grains (Fig 9.12).

Taxon	Akameru	Cyinkomane	M II	M III	M IV	Mweru	Nguri
Bird (Generic)	1	1	18	26	0	20	13
Lagomorph (Generic)	0	0	0	2	1	1	3
Reptile (Generic)	0	0	1	0	0	0	0
Rodents							
Rodent (Generic)	0	0	20	20	11	2	4
Giant pouched rat (*Cricetomys sp.)*	2	1	0	0	0	0	0
Cane rat (*Thryonomys sp.*)	0	6	0	0	0	0	0
Rwanda Mole Rat (*Tachyoryctes ruandae*)	0	1	0	0	0	0	0
African Marsh Rat (*Dasymys incomtus*)	3	17	0	0	0	0	0
Carnivora							
Lion (*Panthera leo*)	0	0	1	0	0	1	0
Leopard (*Panthera pardus*)	1	0	1	0	0	0	0
Domestic Species							
Cattle (*Bos taurus*)	9	48	14	24	30	34	22
Sheep/Goat (*Ovis/Capra*)	7	10	11	28	15	21	7
Chicken (*Gallus gallus*)	2	8	0	0	0	2	2
Other Wild Mammals							
Bovid Size Class 5	0	0	33	82	58	70	47
Bovid Size Class 4	0	0	5	5	4	19	8
Bovid Size Class 3	0	0	87	167	104	118	86
Bovid Size Class 2	0	0	1	4	3	4	4
Bovid Size Class 1	0	0	7	28	17	7	6
Buffalo (*Synerus caffer*)	0	0	0	0	0	2	0
Tragalaphus sp.	0	0	0	0	1	0	0
Bushbuck (*Tragelaphus scriptus*)	0	0	9	14	4	11	1
Sitatunga (*Tragalaphus spekei*)	15	13	2	3	2	0	0
Duiker (*Cephalophus sp.*)	17	27	1	4	1	4	3
White-Bellied Duiker (*Cephalophus leucocaster*)	0	0	0	3	0	2	0
Common Duiker (*Silvicapra grimmia*)	0	0	2	7	4	5	1
Impala (*Aepycerus melampus*)	0	0	1	0	0	0	0
Hippo (*Hippopotamus Amphibius)*							
Suidae (Generic)	0	0	0	0	1	2	0
Great Forest Hog (*Hylochoerus*)	0	1	1	0	0	0	0
Warthog (*Phacochoerus africanus)*	0	0	0	0	4	0	1

Hyrax (*Dendrohyrax arboreus*)	6	1	0	3	0	0	0
Rock hyrax (*Procavia capensis*)	0	0	0	1	1	1	0
Elephant (*Loxidonta africana*)	1	4	1	3	1	0	0
Puku (*Kobus vardonii*)	0	0	1	0	0	0	0
Kob (*Kobus kob*)	0	0	1	3	0	0	1
Waterbuck (*Kobus ellipsiprymnus*)	0	0	0	2	0	0	0

Fig. 9.11 Table showing comparative NISP numbers for the Gautier's assemblages from Akameru and Cyinkomane and the current research.

Site Name	Sample	Context Type	Specimens	Date
Musanze II	14	Deposit	Finger millet	Late Iron Age
	15	Deposit	Finger millet and Hackberry	Late Iron Age
	16	Deposit	Finger millet	1040 – 1201 AD
Musanze III	17, 18, 19	Deposit	Finger millet	Late Iron Age
Nguri Cave	29, 30	Deposit	Finger millet	Late Iron Age
	31	Deposit	Finger millet, legume and fruit	1042 - 1206 AD

Fig. 9.12 Table showing a summary of the paleobotanical results from the Virunga Caves

Despite the similarities between these two bodies of work the larger more extensive zooarchaeological assemblages from this research contradict Gautier's (1983) interpretation of the cave material from Van Noten's (1983) excavations. The results presented here suggest that the cave occupants were not herders who used the caves for refuge in times of need, hunting opportunistically, as suggested by Gautier (1983). Instead they were foragers who had sustained contact and interaction with farmers across a food producing "static frontier" (Lane 2004) in order to increase the food procurement strategies and reduce risks associated with a forager lifestyle. This relationship endured until late in the 19th century when a "moving frontier" made their earlier life way untenable.

This section will first discuss Gautier's (1983) interpretation in the light of the new results from this research, before contextualising the results from the Virunga Caves within the extant forager-farmer relationship models (e.g. Alexander 1984a,b; Lane 2004; Kusimba 2003). Following on from this, the section will then contrast and compare these results with a selection of brief examples of other forager-farmer contexts in the central African rainforest (Mercader 2000), Great Lakes Africa (Lane et al. 2007), east Africa (Lane 2004) and southern Africa (Barham and Mitchell 2008).

9.24 Foragers not Herders: Virunga Cave Dwellers

From the full range of species identified within Van Noten's (1983) excavated assemblage, Gautier (1983) proposed a subsistence suite of species that could have contributed to the diet of the cave occupants, and isolated them from the total. The domestic species within the subsistence suite included cattle (*Bos taurus*), chicken (*Gallus gallus*), sheep/goat (*Ovis/Capra*) and the wild remains included sitatunga (*Tragelaphus spekei*), Duiker (*Cephalophus*), giant pouched rat (*Cricetomys*) and elephant (*Loxidonta africana*). After combining the results of the assemblages from both caves Gautier (1983: 117) found that cattle represented 33.7% of the remains. Based on these results Gautier suggested that the occupants of the caves were involved primarily with cattle herding when away from the caves, and only retreated to the caves at times when the herders were threatened by conflict. Gautier suggested that the wild species were only exploited out of convenience whilst the herders were in the forest. However, in light of the results of the zooarchaeological analysis conducted by this research, at three of the neighbouring Musanze caves and two volcanic caves in the outlying region, this model of cave occupation is no longer tenable.

Firstly, the authority of Gautier's (1983) domestic to wild ratio is questioned. Gautier's combined assemblage gave a ratio of 1:1, (49.6% domestic). However, this was not the case with the results of this research where the domestic to wild ratio stayed remarkably stable at approximately 1:5 throughout the majority of contexts excavated. The discrepancy between Gautier's results and those presented here may be the result of a number of causes. For example Gautier's subsistence suite is less inclusive than the one used by this research. For example Gautier does not include *suids* in his suite despite identifying Great Forest Hog remains in the Cyinkomane assemblage and nor are hyrax remains included, which have been identified in various contexts at Akameru (Gautier 1983: 104-109). The result of Gautier's reduced suite is an increase in the ratio of domestic specimens to wild ones compared to the more extensive list employed. The different sample sizes between Gautier's assemblage and this research may also be significant. Gautier's assemblage size is much smaller than the one analysed. For example, Gautier's (1983: 116) combined assemblage from Cyinkomane and Akameru included 722 specimens of which he identified 203 (28.12%). Due to the larger test excavation unit size, more caves excavated, and by utilising more broad taxonomic categories, such as the bovid size class range, this research analysed 2277 specimens and identified 1494 (65.61%). Thus, due to a larger sample size, from a greater range of sites, with a more inclusive and appropriate subsistence suite, the wild to domestic percentage results of this research should be considered to be more reliable than those from Gautier's analysis.

These results suggest domestic species were less important to the cave occupants. Thus a fundamental component of Gautier's (1983) model has been reversed.

The results of this research suggest that 83% of the subsistence suite enjoyed by the cave occupants were from wild species, presumed to be the result of hunting, with the remainder made of sheep/goat, cattle, and rare chicken. Whilst this distribution shift from domestic to wild specimens does not preclude Gautier's model entirely, for example the cave occupants may still have been herders taking refuge but with a greater reliance on wild species than previously believed, a consideration of the specimens within the wild assemblage does. For example, the species included within the combined assemblage include a range of dangerous and difficult to hunt species, such as buffalo, elephant, lion and hippo that Marshall and Stewart (1994: 14-15) suggest only experienced hunters would have the skills to procure. Thus, Gautier's suggestion that these were opportunistic hunters, whilst not totally disproved, has seriously been brought this into doubt.

Furthermore, Gautier's (1983: 118) suggestion, that when not in the caves the communities responsible for the deposition of the faunal assemblage were primarily involved with cattle herding, is also problematic. For example, if this were the case then we might expect to see a relatively stable kill off exploitation pattern that reflects their herding knowledge (O'Connor 2000: 155-156). However, this is not the case. The cattle remains demonstrate that wide age ranges of animals were butchered, from the extremely young to the extremely old, with many examples in between. This does not conform to a specialised pastoral pattern and suggests that there wasn't a high degree of familiarity with herding. Furthermore, the butchery marks also support this suggestion, because they do not conform to a pattern one would expect if there were a ready supply of meat available from a herd. Instead the butchery marks suggest that domestic animals were extremely heavily butchered with effort made to extract all possible nutrition from the bones. For example, mandibles and other cranial elements commonly show heavy knife marks, and phalanges and scapula examples have been punctured to access marrow, at particularly low yield areas of the skeleton. Suggesting that the availability of domestic meat was limited so when it was fully exploited.

The results of this research suggest that the cave occupants were primarily hunters, with specialised knowledge, who supported their subsistence through interactions with farmers via raiding or trade to receive domesticated resources. Based on the occurrence of a luxury ceramic, associated with rising wealth and the kingdom (see discussion section 9.23 this chapter) and domesticated cereal grains in the caves, trade seems the more likely method of procurement because these products are unlikely to have been raided. The following section will now discuss these results and this interpretation within wider forager-farmer debates, first by applying various forager-farmer models and finally by comparing the results with other regional examples.

9.25 Forager-Farmer Models

The issue of forager-farmer relations has been tackled by archaeologists working in Great Lakes Africa, the east African rift valley (Lane 2004; et al. 2007) and in southern Africa (Barham and Mitchell 2008), amongst many others. For example, through the application of Alexander's (1977, 1978, 1984a, 1984b) "frontier theory" to the adoption of food production in Kenya, Lane (2004: 245) has explored archaeological correlates with phases in the adoption of farmer/herder life ways by hunters/gatherers/fishers, including a pioneer phase, a substitution phase and a consolidation phase. These phases occur as part of a 'moving frontier' that is initiated or restarted when a territorially expanding, food-producing society reaches, and crosses, the limits, or 'static frontiers' imposed by earlier climatic, geographic, or resistance boundaries (Barham and Mitchell 2008: 403, following Alexander 1984a). A 'static frontier' may be re-established when farming groups stop expanding into new territories but border areas with hunter/gatherer/fisher communities, which may result in the establishment of mutually beneficial relations.

During the pioneer phase, limited numbers of farmer/herder individuals explore new territories creating small-scale interaction with hunter/gatherer/fishers. Leaving traces of farmer/herder material culture or subsistence practices at hunter/gatherer/fisher sites. During the subsequent substitution phase farmer/herders begin to colonise the land and increase their interaction with hunter/gatherer/fishers, which may result in major changes in material culture inventories. Finally, during consolidation farmer/herder practices intensify with potentially destructive consequences for the hunter/gatherer/fisher communities (Alexander 1977, 1978, 1984a, 1984b, Lane 2004; Barham and Mitchell 2008).

The following sections will briefly discuss three geographically contrasting examples where forager-farmer relations have been explored in the region and in southern Africa before returning to the Virunga cave dwellers and how these models and examples influence our interpretation of them.

9.26 Forager-Farmer Relations: The Forest

Until recently the Virunga caves would have been enclosed within the central African rainforest, the borders of which today are only a short distance to the north. However, they remained close to the edge of the forest throughout the 2nd millennium AD (Vansina 2004). Therefore, an interesting comparison can be made between the results of this study and the findings of Mercader et al. (2000) regarding forager-farmer relations in the nearby Ituri rainforest, DRC. Although Mercader et al. (2000) did not find any domestic faunal remains within the archaeology of the Ituri forest rock shelters, such as Matupi (see Van Neer 1989), they did encounter ceramics and metals that they believe derived from trade between foragers and farmers during the Iron Age (Mercader et al. 2000: 119). This can be contrasted with the Virunga Cave material where ceramics and metals also occur but alongside the remains of domestic species. This difference may be due to cultural exposure. For example, the Virunga cave occupants had already adopted ceramic technologies and stopped using lithics, suggested by the total lack of lithics encountered either by these excavations of Van Noten's (1983), before they began using the caves and during the 2nd millennium AD lived close to herder/farmer communities at the edge of the forest. This situation may have facilitated the adoption of domestic animals in a way that was not possible for the more technologically and geographically isolated occupants of the Ituri rock shelters.

9.27 Forager-Farmer Relations: Great Lakes Africa and East Africa

Within Great Lakes Africa on the eastern shores of Lake Victoria another subtly different relationship occurred between foragers and farmers in the Iron Age at Usenge 3 (Lane et al. 2007: 62-81). In an Early Iron Age context, Lane et al. (2007: 13) found rare zooarchaeological evidence for domesticated species within a far richer wild faunal assemblage. Based on the range of species and the large amount of wild fauna, such as buffalo, Lane et al. (2007: 75) suggest that the faunal assemblage was created by, "specialist and accomplished hunters rather than opportunistic kills made by individuals primarily engaged in a domestic economy." They also considered the ceramic evidence where only eight out of the possible 262 reconstructable vessels were Classic Urewe whilst the remainder, although related and contemporary, were much cruder and clearly distinct (Lane et al. 2007: 15). They concluded that the producers behind the Usenge ceramics did not have a long term familiarity with Urewe ceramics but were attempting to mimic them, having been exposed to Urewe through contact with neighbouring farming groups as they slowly adopted the trappings of a farming life style (Lane et al 2007: 16). This can be compared to Kusimba's (2003) forager-farmer parallelism. This is just one out of a range of examples in Kenya that Lane (2004) considered from the Late Stone Age and the Iron Age within the 'moving frontier' model. For example, a 'static frontier' has been identified at Elmentietan and Savannah Pastoral Neolithic sites on the Laikipia Plateau that may have existed up to the 20th century, where mixed wild and domestic fauna have been found within the same assemblages (Siiriianen 1984). Clearly, the occurrence of mixed and wild fauna together is not unique, however, the particularities of each situation are subtly different.

9.28 Forager-Farmer Relations: Southern Africa

Forager-farmer relations have long been explored in southern Africa (see the discussion of the Kalahari debate in Chapter 4, section 4.10). For example, the trade and transfer of goods between forager and farmer sites has been archaeologically attested in the Iron Age in Southern Africa in the Thukela Basin through the identification of agro-pastoral ceramics at forager sites and ostrich egg shell beads, bone arrow points and stone tools found on farmer settlements (Barham and Mitchell 2008: 428). Other examples include the Kalahari, where some Bushman communities have acquired goats without radically altering their forager subsistence economy (Barham and Mitchell 2008: 422; Ikeya 1993; Kent 1993), and similar foragers can be seen in the 1st millennium AD archaeology of the Cape (Sadr 2003). Although, the adoption of livestock may be part of a process of acculturation to a pastoral life way (Sadr et al. 2003), this was not the case for the Virunga cave occupants, who remained primarily hunters throughout the 2nd millennium AD. Whilst there are many examples of foragers acquiring stock to minimise subsistence risks, to acquire additional sources of food and to accumulate wealth, the concept of foragers with a self-sustainable herd is more problematic (Barham and Mitchell 2008: 424). For example Smith (2005) suggests that a sustainable herd of sheep requires at least 60 individuals, a size that may not be manageable by anyone other than someone living a full time pastoral life. Thus, this further supports the suggestion that the Virunga cave occupants relied upon outside support to re-supply any livestock that they kept.

9.29 Forager-Farmer Relations: Virunga Caves

The application of "frontier theory" to the Virunga cave subsistence results presents a useful opportunity through which these assemblages may be understood. Lane's (2004: 245) summary of archaeological signatures associated with different phases of the "moving frontier" suggests that during the pioneer phase only traces of exotic materials such as domestic fauna and plants may exist. This is clearly not the case at the Virunga caves where from the earliest contexts domestic fauna make up approximately 20% of all assemblages. However, Lane's (2004) substitution phase has more parallels with the Virunga results.

The substitution phase is archaeologically recognisable through the identification of exotic goods, new technologies, products and prestige goods and the identification of specialised hunting, craft production and changes in dietary practice (Lane 2004: 245). Although not matching these signatures perfectly, the Virunga caves do have a high percentage of domestic faunal remains alongside the presence of ceramics, iron and "exotic" black burnished ware. However, at the Virunga caves this stage appears to have remained stable for nearly 1000 years, which suggests their frontier was not moving. Instead it is suggested here that the adoption of technologies and products associated with farming happened before the occupation of the Virunga Caves began. Perhaps farmers had already interacted with the forest foragers during an earlier "pioneer phase" exposing them to new technologies and goods. However, further colonisation of the forests did not occur because a geographic, "static frontier" was created as the encroachment of farmers was slowed by the steep slopes of the volcanoes and the equatorial rainforest that covered them. It may also be speculated that it was the early success of the forager-farmer relations that encouraged the foragers to take up occupancy of the Virunga caves, so close to the edge of the forest, to exploit the new neighbouring markets.

Finally, late in the 2nd millennium AD there was an abrupt halt in the occupation of the Virunga caves evidenced by a reduction in find density before a complete absence of material in the very uppermost contexts in the Virunga caves. It is believed that these upper deposits may relate to a consolidation phase (Lane 2004: 245), where deforestation and growing agricultural intensification in the 19th century forced the cave occupants to either retreat into the forests, to become assimilated within different groups, such as the growing Rwandan, Nyiginya Kingdom, or migrate elsewhere. This destructive phase may be attested archaeologically by the identification of approximately 150 human skulls on the floor of one of the Musanze caves by Nenquin (1967a: 276). Whilst Nenquin suggests that this site may have been used as a refuge and later a burial ground during the 1914-1918 war, he describes only circumstantial evidence. There are also reports that caves from the same geological group nearby in neighbouring Uganda were used by hunters as a refuge from agricultural aggressors beginning in the 1870s after population increases in the neighbouring cultivator communities created internal conflict and warfare (Grace 1990: 90). Vansina (2004) has traced the growing boundaries of the Rwanda Kingdom in the late 2nd millennium AD and suggests that in 1796 the Virunga caves fell outside of the realm but were not included under neighbouring polities. However, under growing expansionism, by the start of Kigeri Rwabugiri's reign the area was brought under the control of the Rwandan kingdom, although soon after in 1897 it was involved in "anti-Tutsi" revolts (Vansina 2004: 124, 153, 178-179). Thus the archaeological and historical evidence may support an aggressive end to the occupation of the Virunga caves, perhaps as the kingdom expanded, or as it retracted after the rule of Kigeri Rwabugiri and the ensuing wars. Although, it is equally plausible that as deforestation encroached on the area, the caves no longer afforded the occupants sufficient protection, or proximity to the wild species they relied upon, contributing to their abandonment.

By contextualising the cave results within frontier theory models, Virunga subsistence presents an interesting study in forager-farmer relations. For nearly 1000 years the occupants of the caves, who were practising primarily hunting and gathering had a sustained degree of contact with herder/farmer groups across a "static frontier" (Alexander 1984b) based on exchange and not raiding. However, around the same time that the fine black-burnished, potential trade ceramic was introduced to these sites, reflecting an increase in contact with the rising Rwanda Kingdom, the occupants of the caves suffered a dramatic decline in fortunes, being permanently removed from the area as it was overtaken by warfare and agriculture, and the "moving frontier" of food production alongside state expansion.

This frontier model can be compared to Kusimba's (2003) tripartite forager-farmer relationship model, which defined relationship structures as essentially symbiotic, parallel or peripatetic. The first, symbiosis, suggests mutual dependency and a tied relationship that neither farmer nor forager can easily leave. The second, parallelism, involves cultural mimicry but where both groups retain a distinct identity and the third, peripatetic lifestyles, where hunter-gatherers may be defined as flexible generalists (Barham and Mitchell 2008: 406-407). In the absence of farmer sites that may have played a role in Virunga forager subsistence it is difficult to assign the

Virunga cave occupants to any of the three categories above. However, it is suggested here that the Virunga foragers best fit a peripatetic lifestyle where they maintained regular contact with the farmer societies but retained their own identities and subsistence strategies, whilst minimising risk through the exploitation of neighbouring farmer resources.

Thus through the application of forager-farmer relationship models it is possible to tentatively suggest a structured and dynamic relationship that may have existed between the Late Iron Age Virunga Cave occupants and their farmer/herder neighbours. This work can contribute to the growing body of archaeological data that exists in this field that suggests a more nuanced understanding of forager-farmer relations is needed that can successfully incorporate the variety of subtly different, historically situated, and dynamic pasts that the evidence suggests existed.

9.30 Conclusion

This chapter has addressed the pertinent themes outlined in Chapter 3 that highlighted the need for perspectives that follow localised scales of research, including frontiers alongside centres, and which generate multi-narrative, non-ethno-racial pasts through the use of holistic strategies based on empirical, socially meaningful data. This has been achieved by contextualising the research results described in Chapters 6, 7 and 8, within extant Iron Age archaeological debates in Rwanda, Great Lakes Africa and the wider region. Within this contextualisation the chapter has directly tackled the research questions set out in Chapter 4.

Two important themes that were most successfully dealt with by this chapter will be highlighted again here: frontier studies, and continuity and variation:

By focusing on the comparison of **frontier** regions with more historically central areas this research has identified a rich past in the Virunga Caves that spans the 2nd millennium AD and that is tied into the history of the Rwanda Kingdom but is not represented by the official or unofficial oral histories of the state (e.g. Kagame 1972; Vansina 2004; Chrétien 2003). The frontier research has also continued to demonstrate that foragers were not "a shapeless mass of peoples, hapless in the face of the environment" (Schoenbrun 1998: 66) but played a active role in the exploitation of the resources that surrounded them, including trade with farmers. Thus, the northern Rwanda frontier has a dynamic past that should be understood as a historical context and an important factor of pre-Colonial Rwandan life, as has already been demonstrated by western Rwandan frontier social histories (Newbury 2009).

During this research cultural **continuity alongside variation** has been explored through a number of subjects including ceramics and subsistence. The research has added support to the suggestion that Urewe, whilst existing as a region wide ceramic phenomenon also displays meaningful variation at local scales (Ashley 2005). Furthermore, ceramic devolution appears to have occurred at approximately the same time across a variety of Great Lakes Africa locations at the end of the 1st millennium AD, potentially reflecting region wide socio-political changes. However, it devolved in a manner that was locally specific, that may reflect local socio-political variation (although much more work is needed on this). Later in the 2nd millennium AD, although the roulette-decorated ceramics of the Virunga Cave, like their subsistence practices, remained on the whole very stable, historically meaningful variations have been identified within the archaeology.

By focusing on these themes, research can more effectively continue to break down the boundaries that have oversimplified the pre-colonial archaeology in the region and demonstrate that the Iron Age past was not a homogenous experience, nor can it simply be understood through simplistic ethno-economic assumptions that characterise groups based on presumed relations. This process can only aid our understanding of the past as we attempt to present a more accurate picture of complexity suggested by the evidence.

Chapter 10

Conclusions and Future Directions

This thesis has documented a significant new empirical contribution to Rwandan archaeology through the creation, exploration and interpretation of an extensive new body of Iron Age archaeological materials. However, the success of this research lies, not so much in the documentation of new data, but rather in the development and implementation of a politically aware theoretical framework that allowed the research to take place within post-genocide Rwanda and to explore pasts, which are potentially non-ethno-racial in their foundation. Furthermore, the implementation of this framework allowed the reconstruction of a series of non-ethno-racial pre-colonial/Iron Age pasts based on archaeological materials generated by new archaeological research and the reconsideration of extant sources.

The introductory chapter to this thesis (Chapter 1) and the contemporary context chapter (Chapter 2) argued in favour of archaeological re-investigation, re-construction and re-presentation of the Rwandan pre-colonial past. It was suggested that politically aware archaeological research could engage with pre-colonial Rwanda and explore pasts not defined by ethno-racial assumptions whilst remaining archaeologically accountable, thus contributing towards reconciliation and education in post-genocide Rwanda

In Chapters 2 and 3 this thesis described how ethno-racial approaches to society by colonial and post-colonial administrations and culture historians racialised pre-colonial Rwanda. Furthermore, it explained how these presentations legitimated the racialised construction of contemporary Rwandan society, which led to the 1994 genocide. Chapter 2 also described how these presentations remain an obstacle to reconciliation in contemporary Rwanda, specifically in the field of education. Following the identification of this issue, Chapter 3 explored the concept of ethnicity and its application to the archaeology of pre-colonial Rwanda, finding it to be politically dangerous, historically inaccurate, archaeologically impractical, and an obstacle to discussions of the past.

In response, Chapter 3 successfully developed a politically aware non-ethno-racial theoretical framework. This was achieved by rejecting the normative view of archaeological ethnic identity characteristic of a narrow culture historical approach, which suggests social groups were largely static and passive. This was essential because this framework has previously created homogenised historical constructions of pre-colonial Rwanda defined by social exclusivity and opposition. This clearly conflicts with attempts to promote reconciliation by preventing public discussion of the past. Instead this research embraced themes drawn from the post-processual school of archaeology, such as multi-vocality, frontier studies and an emphasis on cultural variation alongside continuity, that present identity as dynamic and actively negotiated, therefore promoting the construction of a socially diverse past beneficial to the reincorporation of historical debate into society and fostering of reconciliation.

Thus, Chapter 4 critically surveyed the extant body of data regarding the Iron Age in Rwanda and Great Lakes Africa and identified a series of archaeologically and socially pertinent research questions that conformed to the theoretical framework and which could be investigated within the limitations of a PhD. Finally, in order to successfully navigate from theory to practice Chapter 5 developed a holistic, practical and flexible fieldwork and analytical methodology capable of addressing the identified issues. Chapter 5 harnessed the empirical potential of traditional culture-historical fieldwork methods alongside a multi-variant approach to analysis. This successfully produced an extensive range of archaeological materials and an array of quantifiable variables. The interpretation of these demonstrated the presence of a variety of socially meaningful continuities and discontinuities in pre-colonial Rwandan archaeology.

This research demonstrates that politically aware theoretical frameworks and research methods can be applied in post-identity-based conflict situations. In Rwanda this means that non-ethno-racial pasts can be explored, encouraging historical constructions to move beyond genocidal images of the past that are defined by violence and tripartite social division. Instead this thesis celebrates a range of pasts that demonstrate the variety and complexity of human experience in pre-colonial Rwanda.

10.1 Archaeological Consequences

The research results presented in Chapters 6, 7 and 8, and contextualised in Chapter 9, have made a significant archaeological contribution to the understanding of Rwanda's pre-colonial/Iron Age past. In broad terms the work is conducive to the development of more textured and nuanced historical constructions through its holistic approach to archaeological materials and variables. Specifically it has made significant contributions in four main areas: chronological issues, conceptual issues, geographical gaps and socio-political gaps:

1. The lack of archaeological research in Rwanda over the past 30 years has prevented the generation of new radiocarbon dates and has left many outstanding **chronological issues**. Thus, this research directly tackled the early dates for the appearance of roulette-decorated ceramics in Rwanda and found the uncritical acceptance of the earliest margins of these dates to be at fault. This has helped to change explanations of how the shift from Urewe to roulette ceramics took place by lessening the rapidity of the transition. Furthermore, this has enabled the exploration of other archaeological possibilities in the late 1st millennium AD such as the suggestion that devolved, or transitional, ceramics were produced in Rwanda, as has been identified elsewhere in Great Lakes Africa. Indeed a separate date from a sealed feature at Karama has allowed this period to be investigated in central Rwanda within this thesis.

2. This research has tackled **conceptual issues** regarding the simplistic division of the past into homogenised opposing periods and opposing peoples. It has demonstrated that a variety of subsistence products were available for the occupants of individual sites and that where subsistence "frontiers" existed there was interaction across these negotiable boundaries. Similarly this research suggests that ceramic traditions like social groups didn't exist in opposition to one another but they were dynamic technologies undergoing historical transitions that may reflect wider socio-political changes.

3. There are many **geographical gaps** in the archaeological record of Rwanda. Previous research has tended to focus on areas central to the history of the Rwandan Kingdom or to areas that surround administrative centres. This research addressed this issue by surveying previously unexplored regions and by surveying peripheral, "frontier" zones alongside more historically core political areas. For example, this research has shown that the north of Rwanda, previously little researched, has a rich, dynamic and historically situated past that can be explored archaeologically.

This approach has also added to the promotion of a more socially varied past through exploiting historically and geographically contrasting regions.

4. The social history of Rwanda is poorly understood and outside of court representations there is little tangible evidence. This **socio-political gap** reflects gaps in the record across Great Lakes Africa, especially in the Early Iron Age, which is notorious for preserving poor contextual data. Instead archaeologists must rely upon oral historical accounts for the later periods and linguistic evidence for the earlier ones. Thus, although the Kabusanze burial has limited interpretative potential due to a lack of comparative material, it represents a fantastic opportunity to glimpse the social complexity that may have existed in the Early Iron Age. It hints at an Urewe burial pattern, including infant burials, the use of grave goods alongside the identification of Early Iron Age pathologies and long distance trade. Finally, in a contrasting region and period, the rich archaeological material from the Virunga caves has helped explore the complex life-ways and relations of the cave occupants.

10.2 Public Archaeology Consequences

There is a high potential for public-archaeology products to be generated from this research (discussed later under future directions). Indeed, the research has already been productive in the public sphere and the long process of public dissemination and feedback that will be necessary for this work to achieve its long-term goals has begun. For example, regular informal public presentations were undertaken in the areas in which work was carried out in order to keep local communities informed about our work and to explain the archaeological landscape that existed around them, including presentation of archaeological materials to be handled by the audience. These updates were continued more formally back at INMR in the form of monthly newsletters for distribution to visitors and members. However, whilst these are valuable dissemination methods and important public relations exercises, they are limited in scope. Thus, a medium was sought with greater potential impact.

Following larger unsuccessful bids, the research raised £10,000 from the Commonwealth to fund a film about the subjective political construction of history in Rwanda that documented how new archaeological research was reconstructing the past in a new climate of reconciliation. The purpose of the film was to stimulate evidence based debate in Rwanda in a variety of communities. The film, "Piecing Together Rwanda's Past" received consensual backing from the INMR and was produced by Banyak Productions, a UK film company. Over twenty minutes the film discusses the potential positive impact of archaeological research in the context of Rwanda's contested past through interviews with government heritage professionals such as Professor Celestin Kanimba Misago, and Maurice Mugabowagahunde, a junior researcher from INMR, alongside media presenters including national radio hosts, and the author. Filming also followed a stage of the research in the Virunga Caves. The film was recorded in Kinyarwanda (the Rwandan national language), English and French, and includes subtitles.

The final edit of the film was completed in February 2008 and was submitted to the Rwanda film festival held in March of that year. Despite its very late entry to this established event, it was immediately included and was shown at all venues, including the opening and closing events in Kigali and Butare that were attended by President Paul Kagame, amongst other dignitaries. As part of the festival the film toured rural areas of the country over two weeks being shown daily for free to audiences of 100s and 1000s on a large mobile cinema screen. Unfortunately it has not been possible to generate formal feedback from the festival audiences because the film was included at very short notice. However, the museum staff and festival organisers reported that it was well received and that they would be very happy for our input again in the future. Since the film festival, the film has been officially accepted by the INMR and is now on regular show in the museum on large flat screen televisions. It is also currently freely available online via UCL's "itunes" web page.

The success of this reception must be emphasised. The film deals with very difficult issues in Rwanda that are often considered too dangerous or illegal to debate. For example it explicitly tackles presentations of pre-colonial social-exclusivity. Thus, the successful inclusion of this film in a national event and national institution demonstrates the potential for a politically engaged archaeology in Rwanda and suggests that educational archaeology may be possible in the future. Furthermore, the use of the film by the museum at international post-conflict conferences is a sign that this approach may be successfully applied to other non-Rwandan contexts. For example, Maurice Mugabowagahunde took the film on the instruction of the INMR to the 2008 International Peace Conference, Angkor, Cambodia to be shown at the session on Youth and Reconciliation: Together Searching for Justice and Acting for Peace. Maurice reported that it was enthusiastically received and, whilst it is again difficult to formally measure the feedback, it is a clear demonstration of the willingness of individuals and institutions to engage with tangible archaeological evidence instead of colonial historical constructions.

10.3 Future Directions

Although this research has produced considerable and significant findings and has begun to address the issues set out in the introductory chapters, it is recognised that further archaeological research in Rwanda is needed to create many more narratives and to develop the ones identified. Furthermore, whilst this research has managed to generate and explore non-ethno-racial pasts that do not repeat the genocidal constructions of eternally opposed social groups, it is recognised that much work is needed to explore this in more detail and to judge how best to incorporate this information within secondary school education. There is also the likelihood that data produced by this research could be removed from the theoretical framework established here and twisted to fit an ethno-racial construction of pre-colonial Rwanda. Unfortunately, whilst it is believed that the data presented here does not support such an approach it is very difficult to prevent this from happening as Rwanda's past continues to be contested.

A few suggested areas for future research attention include:

- **Geographical Coverage** – There are still large areas of Rwanda that have never been surveyed or considered archaeologically and these are often frontier regions at the borders of modern Rwanda. For example, the Akagera National Park in eastern Rwanda presents a prime opportunity for archaeological survey, being free from human settlement, having never been systematically surveyed (although Lugan 1983 did attempt some limited survey) and being a region which lay at the intersection between the Kingdoms of Rwanda (Nyiginya), Burundi and Bugeresa, Gisaka, Mubari, Ndorwa in the late 2nd millennium AD (Vansina 2004: 111). There is also potential for survey along the border with Burundi since the recent outbreak of peace in that country has reduced the danger of rebel incursions in this region. It is important that more pasts are explored to make Rwanda's history more inclusive and to make this approach more applicable to the majority of Rwandans who want to understand the variety of their past.

- **Methodological approaches** – Although the test-excavation units employed in this research represent an increase in exposure they are still primarily focused on exposing vertical stratigraphic relations in order to better understand the chronological development of sites. However, in order to access greater social information, to increase our understanding of the variety of experience in Rwanda, and thus develop richer pasts, we must employ excavation strategies with a greater horizontal emphasis. For example, future research could include a return to Kabusanze to expose a much greater area and to explore if there are more burials cut into the natural gravels, perhaps even a necropolis as seen at Tongo and Sanga. Alternatively, more expansive excavation could be undertaken in the Virunga caves in order to further understand the life ways of the cave occupants in the 2nd millennium AD.

- **Public Engagement and Dissemination** – The inspiration and motivation for this research was the contemporary political context in Rwanda, including the racialised past and the failure to return pre-colonial history to the secondary school syllabus. Whilst this research has successfully identified and explored non-ethno-racial pasts in the Rwandan Iron Age, and has indicated the potential reception of this approach by the use of documentary film, clearly there is much more work and many more exercises to do before archaeology may be considered for official acceptance within the syllabus. In order to develop the educational archaeological approach in Rwanda more formal feedback exercises and workshops are needed.

For example, it would be beneficial to work with the filmmakers again and to tour the film with educationalists and archaeological materials around public centres in the areas in which the work was undertaken to stimulate discussion. The filmmakers would record the process whilst Rwandan educationalists record responses to which the project could be responsive. This would contribute to a final package that could be submitted to the Rwandan Ministry of Education, presenting the results of this exercise and the potential and limitations identified in relation to application of this approach in Rwanda.

Key to the success of this approach will be whether the education department and government are receptive to the idea that pre-colonial Rwanda is not just a history of the kingdom and its court but has the potential to include the full variety of human experience within its modern borders. Moreover, the successful implementation of a participatory, evidence based, approach to history teaching will be necessary. Whilst this approach has previously failed to gain sustained government support it has never been approached archaeologically. Thus, through greater awareness of the potential of educational archaeology in post-identity-based conflicts it is believed this is possible.

These challenges will not be easy to overcome, particularly that of incorporating archaeology into post-genocide debates in the non-academic sphere. However, it is believed that this thesis has made a significant archaeological contribution to the development of more complex and dynamic presentations of Rwanda's pre-colonial past that can contribute to a better-informed and more integrated future.

Bibliography

Abungu, G. H. O. 1989. *Communities on the River Tana, Kenya: an archaeological study of relations between the delta and the river basin, AD 700-1890*. Unpublished PhD Thesis, University of Cambridge.

Albarella, U. and S. J. M Davis. 1996. Mammals and birds from Launceston Castle, Cornwall: decline in status and the rise of agriculture. *Circaea* 12: 1-156.

Alexander, J. A. 1977. The frontier concept in prehistory: the end of the moving frontier, in V. Megaw (ed), *Hunters, Gatherers and First Farmers Beyond Europe: An Archaeological Survey*. 25-40. Leicester: Leicester University Press.

Alexander, J. A. 1978. Fronteir studies and the earliest farmers in Europe, in D. Green, C. Haselgrove and M. Spriggs (eds), *Social Organisation and Settlement*. 13-29. Oxford: B. A. R. International Series 47 (i).

Alexander, J. A. 1984a. The end of the moving frontier in the Neolithic of north-eastern Africa, in L. Kryzaniak and M. Kobusiewicz (eds.), *Origin and early development of food-producing cultures in north-eastern Africa*, 57-63. Poz án: Polish Academy of Sciences.

Alexander, J. A. 1984b. Early frontiers in southern Africa, in M.Hall, G.Avery, D. M. Avery, M. L. Wilson and A. J. B. Humphreys (eds.), *Frontiers: southern African archaeology today*, 12-23. Oxford: British Archaeological Reports.

Ambrose, S. 1982. Archaeology and Linguistics in East Africa. In C. Ehret & M. Posnansky (eds) *The Archaeological and Linguistic Reconstruction of African History*. 104-157. Berkeley, Los Angeles: University of California Press.

Amorosi, T. 1989. *A postcranial guide to domestic neo-natal and juvenile mammals.* Oxford: British Archaeological Reports International Series 533.

Anfray, F. 1967. Matara. *Annales d'Ethiopie* 7, 33–53.

Ardener, E. 1989. Language, ethnicity and population, In M. Chapman (ed) *The Voice of Prophesy and Other Essays.* 65-71. Oxford: Blackwell.

Arnold, B. 1990. The Past as Propaganda. Totalitarian Archaeology in Nazi Germany. *Antiquity* 64: (244) 426- 478.

Arnold, B. 1999. The Contested Past**.** *Anthropology Today: 15: 1-4.*

Asad, T. 1972. Market Model, Class Structure and Consent: A Reconsideration of Swat Political Organisation. *Man*, Vol. 7, No. 1: 74-94.

Ashley, C. 2005. *Ceramic Variability and Change: A Perspective from Great Lakes Africa.* Unpublished PhD Thesis: University College London.

Banks, M. 1996. *Ethnicity; Anthropological Constructions*. London: Routledge.

Barham, T. and P. Mitchell. 2008. *The First African: African archaeology from the earliest toolmakers to most recent foragers.* Cambridge World Archaeology. Cambridge: Cambridge University Press.

Barth, F. 1969. Introduction. In Barth, F. (ed) *Ethnic Groups and Boundaries: The Social Organization of Culture Difference*. 1-38. Boston: Little Brown.

Benjamin, E. 2001. *Ethnoarchaeological study of pottery in Buganda, Uganda.* Unpublished BA dissertation, University College London.

Bent, J. T. 1896. *The ruined cities of Mashonaland*. London: Longmans, Green.

Bernbeck, R. and S. Pollok. 1996. Adohoya, archaeology, and identity. *Current Anthropology*, Vol 37, 1: 138-142

Binford, L. 1962. Archaeology as Anthropology. *American Antiquity*, 28: 217-225

Binford, L. 1965. Archaeological Systematics and the study of cultural process. *American Antiquity*, 31: 203-210

Boutakoff, I. 1937. Premières exploration méthodiques des gisements de l'âge de la pierre au Ruanda-Urundi. Abris sous roche, ateliers et stations en plein air. Institute Colonial Belge, Bulletin des Séances 8(1): 179-201

Bower, J. 1986. A Survey of Surveys: aspects of surface archaeology in sub-Saharan Africa. *The African Archaeological Review*. Volume 4: 21-40.

Brabant, H. 1963. Observations anthropologiques et odontologiques sur les dents des Hutu du Rwanda. *Annales, Sciences humaines,* No. 47. Tervuren.

Brain, C. K. 1981. *The Hunters and the hunted: an introduction to African cave taphonomy.* Chicago: Chicago University Press.

Briey, R. de. 1920. Musinga. *Congo* 1/2:1-13.

Bromley, Y. 1974. The term ethnos and its definition. In Yulian Bromley (ed) *Soviet ethnology and anthropology today.* The Hague: Mouton.

Bromley, Y. 1975. *Contemporary ethnic processes in the USSR*. Moscow: USSR Academy of Science.

Bromley, Y. 1980. The object and the subject-matter of ethnography. In Earnest Gellner (ed) *Soviet and Western anthropology*. 151-60. London: Duckworth.

Bruwer, A. J. 1965. *Zimbabwe: Rhodesia's Ancient Greatness*. Cape Town: Hugh Keartland Publishers.

Buckley-Zistel, S. 2009. Nation, narration, unification? The politics of history teaching after the Rwandan genocide. *Journal of Genocide Research*, Vol. 11 (1): 31-53.

Caldwell, J. R. 1959. The New American Archaeology. *Science*, Vol. 129, Issue 3345: 303-307.

Casteel, R. W. 1978. Faunal assemblages and the "Wiegemethode" or weight method. *Journal of Field Archaeology*. 5: 71-7.

Caton-Thompson, G. 1931. *The Zimbabwe Culture ruins and reactions*. Oxford: Clarendon Press.

Chami, F. 1994. *The Tanzanian coast in the First Millennium AD.* Studies in African Archaeology 7. Uppsala, Sweden, Societas Archaeologica Upsaliensis.

Chaplin, R. E. 1971. *The study of animal bones from archaeological sites*. London: Seminar Press.

Chaplin, S. 1974. The prehistoric rock art of the Lake Victoria region, *Azania* IX: 1-50.

Chapman, S. 1967. Kansyore Island. *Azania* 2: 165-191.

Childe, V. G. 1925. *The Dawn of European Civilisation. London:* Kegan, Paul, Trench & Trubner.

Childe, V. G. 1929. *The Danube in Prehistory*. Oxford: Oxford University Press.

Childe, V. G. 1935. *New light on the most ancient east: the oriental prelude to European prehistory*. K. Paul, Trench, Trubner: London.

Chrétien, J-P. 2003. *The Great Lakes of Africa: Two Thousand Years of History* (translated by Scott Straus). New York: Zone Books.

Clark, K. 1983. *The Potter's Manual: Complete, practical-essential reference for all potters*. London: MacDonald Orbis.

Clarke, D. 1968. *Analytical Archaeology*. Methuen: London.

Clarke, D. 1973. Archaeology: the loss of innocence. *Antiquity* 47: 6-16

Clist, B. 1987. A Critical Reappraisal of the Chronological Framework of the Early Urewe Iron Age Industry. *Muntu* 6: 35-62.

Cohen, A. 1974 (ed). *Urban Ethnicity.* London: Tavistock Publications.

Collett, D. and P. Robertshaw. 1983. Pottery Traditions of Early Pastoral communities in Kenya. *Azania* XVIII: 107-125.

Colley, S. 1995. What happened at WAC-3? *Antiquity,* 69: 15-18.

Connah, G. 1996. *Kibiro: The salt of Bunyoro, past and present*. London: British Institute in Eastern Africa Memoir 13.

Connah, G. 1997. The cultural and chronological context of Kibiro, Uganda, *African Archaeological Review* 14(I): 25-67.

Crabtree, P. J. 1988. Review of Academic Freedom and Apartheid: the Story of the World Archaeological Congress by P. Ucko 1990. *American Journal of Archaeology*, Vol. 92, No. 3: 441.

Craddock, P. T., Freestone, I., Middleton, A., and van Grunderbeek, M.-C. 2007. Early Iron Age iron- smelting debris from Rwanda and Burundi, East Africa. *Historical Metallurgy*, 41, 1–14.

Crane, H. & Griffin, J.B. 1962. University of Michigan Radiocarbon Dates VI. *Radiocarbon* 4: 183-203.

David, N. 1972. On the Life Span of Pottery, Type Frequencies, and Archaeological Inference. *American Antiquity*, Vol, 37, No.1: 141-142.

David, N. & Kramer, C. 2001. *Ethnoarchaeology in Action*. Cambridge: Cambridge University Press.

Delmas, L. 1950. *Généalogies de la noblesse (les Batutsi) du Ruanda.* Kabgayi, Rwanda.

de Maret, P. 1977. Sanga: New Excavations, More Data, and Some Related Problems, *The Journal of African History*, Vol. 18, No. 3: 321-337.

de Maret, P. 1985. *Fouilles archéologiques dans la vallée du Haut-Lualaba, Zaire; 2, Sanga et Katongo, 1974*. Tervuren: Musée royal de l'Afrique centrale. Musée royal de l'Afrique centrale, Tervuren, Belgique. Annales. Série in-8o. Sciences humaines; no.120.

de Maret, P.1990. Phases and facies in the archaeology of central Africa. In P. Robertshaw (ed) *A History of African Archaeology*. 109-134. Oxford: James Currey.

de Maret, P. 1996. Shum Laka (Cameroon): human burials and general perspectives. In G. Pwiti & R. Soper (eds) *Aspects of African Archaeology*. 265-280. Harare: University of Zimbabwe Press.

de Maret, P. 2005. From Pottery Groups to Ethnic Groups in Central Africa. In A.B. Stahl (ed) *African Archaeology: A Critical Introduction*. 420-440. Oxford: Blackwell Publishing.

de Maret, P., F. van Noten, and D. Cahen. 1977. Radiocarbon dates from west central Africa: A synthesis. *The Journal of African History,* Vol. 18. No. 4: 481: 505.

Denbow, J. 1984. Prehistoric herders and foragers of the Kalahari: the evidence for 1500 years of interaction. In C. Schirie (ed) *Past and Present in Hunter Gatherer Studies* 175-93. London: Academic Press.

Desforges, A. 1999. *Leave None to Tell the Story: Genocide in Rwanda.* Human Rights Watch. Interntaional Federation of Human Rights.

Desmedt, C. 1991. Poteries anciennes décorées à la roulette dans la Région des Grands Lacs. *The African Archaeological Review*, Vol. 9: 161-196.

de Vos, G. A. 2006. Ethnic Pluralism: Conflict and Accommodation. In L. Romanucci-Ross, G. A. de Vos and T. Tsuda (eds) *Ethnic identity: problems and prospects for the twenty-first century* 4th ed. 1-36. Lanham: Altamira Press.

de Vos, G and L. Romanucci-Ross, 2006. Conclusion: Ethnic Identity: A Psychocultural Perspective. In L. Romanucci-Ross, G. A. de Vos, and T. Tsuda (eds) *Ethnic Identity. Fourth Edition. Problems and prospects for the twentieth century.* London: Altamira Press. 375-400.

d'Hertefelt, M. 1971. *Les Clans du Rwanda ancient: Eléments d'ethnocociologie et d'ethno-histoire*. Royal Museum for Central Africa Annals, no. 70 Tevuren, Belgium.

Dietler, M. & Herbich, I. 1989. *Tich Matek*: the technology of Luo pottery production and the definition of ceramic style. *World Archaeology*, Vol. 21, No. 1: 148-164

Dietler, M. & Herbich, I. 1993. Living on Luo Time: Reckoning Sequence, Duration, History and Biography in a Rural Africa Society. *World Archaeology*, Vol. 25, No.2: 248-260.

Dietler, M. Herbich, I. 1994. Ceramics and Ethnic Identity: Ethnoarchaeological observations on the distribution of pottery styles and the relationships between the social contexts of production and consumption. In *Terre Cuite et Société: la céramique,* *document, techniques, économique, culturel. XIVe Recontres Internationales d'Archéologie et d'Histoire d'Antibes.* 459-472. Juan-les-Pins: Éditions APDCA,

Dietler, M. & Herbich, I. 1998. Habitus, Techniques, Style: An Integrated Approach to the Social Understanding of Material Culture Boundaries. In M. Stark (ed) *The archaeology of social boundaries.* 232-263. Washington: Smithsonian Institute Press

Diop, C. A. 1996. *Towards the African Renaissance: Essays in African Culture and Development 1946-1960*. London: Karnak House.

Earl, T. K. and R. W. Preucel. 1987. Processual Archaeology and the Radical Critique. *Current Anthropology*, Vol. 28. No. 4. 501-538.

Eggert, M.K.H. 2005. The Bantu Problem and African Archaeology. In A. Stahl (ed) *African Archaeology: A Critical Introduction*. 301-326. Oxford: Blackwell Press.

Ehret, C. 1998. *An African Classical Age: Eastern and Southern Africa in World History 1000BC to AD400*. Oxford: James Currey.

Eltringham, N. 2004. *Accounting for Horror: Post-Genocide Debates in Rwanda*. London: Pluto Press.

Emberling, G. 1997. Ethnicity in Complex Societies: Archaeological Perspectives. In *Journal of Archaeological Research,* vol. 5, no. 4: 295-335

Eriksen, T. H. 1993. *Ethnicity and Nationalism: Anthropological Perspectives.* London: Pluto Press.

Esterhuysen, A. B. 2000. The birth of educational archaeology in South Africa. *Antiquity*, Vol. 74: 159-65.

Evans-Pritchard, E. E. 1940. *The Nuer: A Description of the Modes of Livelihood and Political Institutions of a Nilotic People.*Oxfrord: Oxford University Press.

Fagan, B. & Lofgren, L.1996b. Archaeological Sites on the Nile-Chobi Confluence. *Uganda Journal* 30 (2): 201-206.

Fagg, B. 1969. Recent Work in West Africa: New Light on the Nok Culture. *World Archaeology.* Vol.1, No. 1: 41-50.

Fardon, R. 1987. African Ethnogenesis: Limits to the Comparability of Ethnic Phenomena. In L. Holy (ed) *Comparative Anthropology.* Oxford: Blackwell.

Fontein, J. 2006. *The Silence of Great Zimbabwe: Contested landscapes and the power of heritage*. London: UCL Press.

Frazer, J. G. 1890. *The Golden Bough.* London: Macmillan.

Freedman, S. W., Weinstein, K. M. and T. Longman 2006. *Ministry of Education, Technology and Scientific Research: The Teaching of History: A Participatory Approach.* Kigali: National Curriculum Development Center.

Freedman, S. W., Weinstein, K. M. and T. Longman. 2008. Teaching History after Identity-Based Conflicts: The Rwanda Experience. *Comparative Education Review,* Vol. 52, no. 4: 663-690.

Fuller, D. 2004. Early Kushite Agriculture: Archaeobotanical Evidence from Kawa. *Sudan & Nubia* 8, 70-74

Fuller, D. 2005. Crop Cultivation: The Evidence. In Shillington, K (ed.) Encyclopedia of African History, pp. 326-328. New York: Fitzroy Dearborn

Fuller, D. Q., K.C. Macdonald and V. Vernet. 2007. Early domesticated pearl millet in Dhar Néma (Mauritania): Evidence of crop-processing waste as ceramic temper. In *Fields of change. Rogress in African archaeobotany*, ed R.T.J. Cappers, 71-76. Groningen: Barkhuis Publishing.

Gautier, A. 1983. Les restes osseux des sites d'Akameru et de Cyinkomane (Ruhengeri, Rwanda). In Van Noten, F. *Histoire Archaeologique Du Rwanda*. 104-120 Musee Royal De L'Afrique Centrale – Tervuren, Belgique Annales – serie in-8 – sciences humaines – N 112.

Gautier, A. 1984. How do I count you? Let me count the ways? Problems of archaeozoological quantification, in C. Grigson and J. Clutton-Brock (eds) *Animals and archaeology: 4. Husbandry in Europe*. Oxford: British Archaeological Reports International Series 227: 237-51.

Giblin. J. 2003. *The Royal Potters of Buganda: A Social and Symbolic Study*. Unpublished MA Thesis. Institute of Archaeology. University College London.

Giblin, J. 2008. New Work on the Later Archaeology of Rwanda 2006 to 2007: A Preliminary Fieldwork Report. *Nyame Akuma,* Vol. 69: 45-55.

Gibson, A. & Woods, A. 1997 [1990]. *Prehistoric Pottery for the Archaeologist*. Leicester: Leicester University Press.

Gilbert, A. S. and B. H. Singer. 1982. Reassessing zooarchaeological quantification. *World Archaeology* 14 (1): 21-40.

Gilbert, A. S., Singer, B. H. and D. Perkins jr. 1982. Quantification experiments in computer-stimulated faunal collections, *Ossa* 8: 79-94.

Gosselain, O.P. 1992. Technology and Style: Potters and Pottery Among Bafia of Cameroon. *Man*, Vol 27: 559-586

Gosselain, O.P. 1994. Skimming through Potters' Agendas: An Ethnoarchaeological Study of Clay Selection Strategies in Cameroon. In S.T. Childs (ed) *Society, Culture, and Technology in Africa*. 99-107. Philadelphia: MASCA Research Papers in Science and Archaeology.

Gosselain, O.P. 1998. Social and Technical Identity in a Clay Crystal Ball. In M. Stark (ed) *The archaeology of social boundaries*. 78-106. Washington: Smithsonian Institute Press.

Gosselain, O.P. 2000. Materializing Identities: An African Perspective. *Journal of Archaeological Method and Theory,* Vol. 7, No. 3: 187-217.

Gosselain, O.P., Livingstone Smith, A., Wallaert, H., Williams Ewe, G. & Vander Linden, M. 1996 Preliminary results of fieldwork by the "Ceramics and Society Project" in Cameroon, December 1995-March 1996. *Nyame Akuma*, No. 46: 11-17.

Götzen, G. A. von. 1899. *Durch Afrika von Ost nach West: Resultate und Begeben heiten einer Reise von der deutsch-ostafrikanischen Küste bis zur Kongomündung in den Jahren 1893/4.* 2nd ed. Berlin: D. Reimer.

Grace, P. 1990. Caves in Kigezi district. *Azania*, 25: 87-90.

Grant, A. 1982. The use of tooth wear as a guide to the age of domestic ungulates, in B. Wilson, C. Grigson and S. Payne (eds) *Ageing and sexing animal bones from archaeological sites*. 109: 91-108. Oxford: British Archaeological Reports British Series.

Grayson, D. K. 1984. *Quantitative Zooarchaeology.* London: Academic Press.

Hall, M. 1984. The burden of tribalism: the social context of Southern African Iron Age studies. *American Antiquity*, Vol. 49, No.3: 455-67.

Hall, M. 1990. 'Hidden History': Iron Age archaeology in Southern Africa. In Robertshaw, P. (ed) *A History of African Archaeology*. 59-77 London: James Currey.

Hall, M. 1996. *Archaeology Africa*. London: James Currey.

Hall, R. N. 1909. *Prehistoric Rhodeisa*. London. Unwin.

Hamilton, A. C. 1982. *Environmental history of East Africa: a study of the Quaternary*. London: Academic Press.

Henige, D. 1974. *The Chronology of Oral Tradition: Quest for a Chimera.* Oxford: Clarendon Press.

Herbich, I. 1987. Learning patterns, potter interaction and ceramic style among the Luo of Kenya. *African Archaeological Review*, Vol. 5: 193-204.

Herbich, I. & Dietler, M. 1989 River – Lake Nilotic: Luo. In J. Barbour & S. Wandibba (eds) *Kenyan Pots and Potters.* 27-40. Nairobi: Oxford University Press.

Hiernaux, J. 1954. A new find of Dimple-Based Pottery in Africa. *Man*, Volume 54, No. 259: 164.

Hiernaux, J. 1956. Note sur une ancienne population de Ruanda-Urundi: les Renges. Zaire 4: 351-360.

Hiernaux, J. 1962. Le début de l'Age des Métaux dans la région des Grands Lacs Africains. In G. Mortelmans & J. Nenquin (eds) *Actes du IV Congres Panafricain de Prehistoire et de L'Etude de Quaternaire:* 381-389. Musee Royal de L'Afrique Centrale, Tervuren, Belgique Annales. Serie IN-8 Sciences Humaines no. 40.

Hiernaux, J. 1968. Bantu Expansion: The Evidence from Physical Anthropology Confronted with Linguistic and Archaeological Evidence. *Journal of African History*, 9 (4): 505-515.

Hiernaux, J. 1971. *Fouilles archéologiques dans la vallée du Haut-Lualaba / par Jean Hiernaux, Emma de Longrée et Josse De Buyst; 1, Sanga, 1958*. Tervuren: Musée royal de l'Afrique centrale. Musée royal de l'Afrique centrale, Tervuren, Belgique. Annales. Série in-8o. Sciences humaines; no 73.

Hiernaux, J. 1974. *The People of Africa*. London: Weidenfeld & Nicolson.

Hiernaux, J. and E. Maquet. 1957. Cultures préhistoriques de l'âge des métaux aux Ruanda-Urundi et au Kivu (Congo Belge), 1ère partie, *Académie Royale des sciences coloniales, Bulletin des séances*, 2,6, pp. 1126-1149.

Hiernaux, J. and E. Maquet. 1960. *Cultures préhistorique de l'âge des métaux au Ruanda-Urundi et au Kivu (Congo belge), 2^me partie.* Bulletin des Sciences de L'Academie Royals des Sciences Coloniale.

Hiernaux. J. & Maquet, E. 1968 *L'Age du Fer a Kibiro (Uganda).* Tervuren: Musee Royale de l'Afrique Centrale.

Hintjens, H. 2008. Post-Genocide Identity Politics in Rwanda. *Ethnicities,* Vol. 8, No. 1: 5-41.

Hodder, I. 1982. *Symbols in action: Ethnoarchaeological studies of material culture*. Cambridge: Cambridge University Press.

Hodder, I. 1984. Archaeology in 1984. *Antiquity* 58: 25-32.

Hodder, I. 1985. Postprocessual archaeology. *Advances in Archaeological Method and Theory* 8: 1-26.

Hodder, I. and C. Orton. 1986. *Spatial Analysis in Archaeology*. Cambridge: Cambridge University Press.

Holl A. 1990. West African Archaeology: colonialism and nationalism. In P. Robertshaw (ed) *A History of African Archaeology* pp 296-308.Oxford: James Currey.

Huffman, T.N. 1970. The Early Iron Age and the Spread of the Bantu. *South African Archaeological Bulletin*, 25: 3-21.

Huffman, T.N.1989. Ceramics, settlements and Late Iron Age migrations. *African Archaeological Review* 7: 155-182.

Huffman, T.N. 2007. *Handbook to the Iron Age: the archaeology of pre-colonial farming societies in Southern Africa*. Natal: University of KwaZulu-Natal Press.

Humphris, J. 2008. Iron Production in Southern Rwanda. A summary of recent research. *Nyame Akuma* Vol. 70: 2-10.

Ikeya, K. 1993. Goat-raising among the San in the central Kalahari, *African Study Monographs* 14(I): 39-52.

Johnson, M. 1999. *Archaeological Theory: An Introduction*. Oxford: Blackwell Publishers

Johnston, H. H. 1902. *The Uganda protectorate : an attempt to give some description of the physical geography, botany, zoology, anthropology, languages and history of the territories under British protection in East Central Africa, between the Congo Free State and the Rift Valley and between the first degree of south latitude and the fifth degree of north latitude.* London: Hutchinson

Jolly, D., Taylor, D., Marchant, R., Hamilton, A., Bonnefille, R., Buchet, G., & Riollet, G. 1997. Vegetation Dynamics in Central Africa Since 18,000 yr BP: Pollen Records from the Interlacustrine Highlands of Burundi, Rwanda and Western Uganda. *Journal of Biogeography*. Vol. 24, No.4: 495-512.

Jones, S. 1997. *The Archaeology of Ethnicity: Constructing identified in the past and present*. London: Routledge.

Kagame, A. 1947. Le code ésotérique de la dynastie du Rwanda. *Zaire* I: 363-86.

Kagame, A. 1951. *La Poésie dynastique du Rwanda.* Royal Academy of Overseas Sciences, Moral and Political Sciences Section, no. 22. Brussels: Belgian Royal Colonial Institute.

Kagame, A. 1952. *Le Code des institutions politiques du Rwanda précolonial.* Royal Academy of Overseas Sciences, Moral and Political Sciences Section, no. 26. Brussels: Belgian Royal Colonial Institute.

Kagame, A.1954. *Les Organisations socio-familiales de l'ancien Rwanda.* Royal Academy of Overseas Sciences, Moral and Political Sciences Section, no. 26. Brussels: Belgian Royal Colonial Institute.

Kagame, A. 1959. *La notion de génération appliquée a la généalogie dynastique et à l'histoire du Rwanda des Xe-XIe siècles a nos jours.* Academie royale des sciences coloniales. Classe des sciences morales et politiques. Bruxelles: Academie royale des sciences coloniales.

Kagame, A. 1961. *L'Histoire des armies bovines dans l'ancien Rwanda.* Royal Academy of Overseas Sciences, Moral and Political Sciences Section, no. 25. Brussels: Belgian Royal Colonial Institute.

Kagame, A. 1963. *Les Milices du Rwanda précolonial.* Royal Academy of Overseas Sciences, Moral and Political Sciences Section, no. 28. Brussels: Belgian Royal Colonial Institute.

Kagame, A. 1969. *Introduction aux grands genres lyriques de l'ancien Rwanda.* Butare, Rwanda: Editions universitaires du Rwanda.

Kagame, A 1972. *Un Abrégé de l'ethno-histoire du Rwanda.* Butare, Rwanda: Editions universitaires du Rwanda.

Kagame, A. 1975. *Un Abrégé de l'histoire du Rwanda de 1853 à 1972. Vol. 2. Butare, Rwanda:* Editions universitaires du Rwanda.

Kagame, A. 1981. La documentation du Rwanda sur l'Afrique interlacustrine des temps anciens. In *La Civilisation ancienne des peoples des Grands Lacs*, 300-330. Paris: Editions Karthala.

Kent, S. 1993. Sharing in an egalitarian Kalahari community, *Man* 28: 479-514.

Kent, S. (ed) 1998. *Gender in African Prehistory*. London: Altamira.

Kent, S. 1988. Invisible Gender – Invisible Foragers: Southern African Hunter-Gatherer Spatial Patterning and the Archaeological Record. In S. Kent (ed) *Gender in African Prehistory*. 39-68. London: Altamira.

Khol, P. 1993. Limits to a postprocessual archaeology (or The dangers of a new scholasticism). In N. Yoffee and A. Sheratt (eds) *Archaeological Theory: Who sets the agenda?* 13-26. Cambridge: Cambridge University Press.

Khotomaki, M. 2009. *An ethnoarchaeological study of pottery production in Rwanda.* Unpublished BA Thesis. Institute of Archaeology. University College London.

Killick, D. 2004. Review essay: what do we know about African iron working? *Journal of African Archaeology* **2**: 97–112.

Killick, D. 2009. Cairo to Cape: The Spread of Metallurgy Through Eastern and Southern Africa. *Journal of World Prehistory*, 22: 399-414.

Klein, R. and K. Cruz-Uribe, 1984. *The analysis of animal bones from archaeological sites.* Chicago: Chicago University Press.

Kopytoff, I. 1987. The Internal African Frontier: The Making of an African Political Culture. In I. Kopytoff (ed) *The African Frontier: The Reproduction of Traditional African Societies*. 3-88. Bloomington: Indiana University Press.

Kossina, G. 1911. *Die Herkunft der Germanen*. Kabitzsch: Leipzig.

Kusimba, S. B. 2003. *African foragers: environment, technology, interactions.* Walnut Creek: AltaMira Press.

Lane, P. 2004 . The 'moving frontier' and the transition to food production in Kenya. *Azania* XXXIV: 243-264.

Lane, P., Ashley, A., Setsonen, O., Harvey, P., Mire, S. and F. Odede. 2007. The Transition to Farming in eastern Africa: New faunal and dating evidence from Wadh Lang'o and Usenge 3, Kenya. *Antiquity*, Vol. 81, No. 311: 62-81.

Leach, E. 1954. *Political Systems of Highland Burma.* London: G. Bell & Sons.

Leakey, L.S.B. 1931. *The Stone Age cultures of Kenya Colony*. Cambridge: Cambridge University Press.

Leakey, M.D., Owen, W.E. & Leakey, L.S.B. 1948 *Dimple-based Pottery from Central Kavirondo, Kenya Colony*. Nairobi: Coryndon Memorial Museum, Occasional Paper No. 2.

Lee, R. B. and M. G. Guenther. 1991. Oxen or Onions? The Search for Trade (and Truth) in the Kalahari, *Current Anthropology*, Vol. 32, No. 5: 592-601.

Levitan, B. M. 1983. Reducing the work-load: sub-sampling animal bone assemblages. *Circaea* 1: 7-12.

Lienhardt, G. 1961. *Divinity and Experience*. Oxford: Caledonian Press.

Longman, T and T. Rutagengwa. 2004. Memory, Identity and Community in Rwanda. In Stover amd Weinstein (eds) *My Neighbour, My Enemy: Justice and Community in the Aftermath of Mass Atrocity*. Cambridge: Cambridge University Press.

Loupias, P. 1908. Tradition et légende des Batutsi sur la creation du monde et leur établissement au Rwanda. *Anthropos* 3:1-13.

Low-Beer, A. 2001. Politics, School Textbooks and Cultural Identity: The Struggle in Bosnia Herzegovina. *Paradigm* 2/3.

Lowe, V.P.W. 1967. Teeth as indicators of age with special reference to Red Deer (*Cervus elaphus*) of known age from Rhum. *Journal of Agricultural Research* 9: 157-64.

Lubbock, K. 1865. *Pre-historic times as illustrated by ancient remains and the manners and customs of modern savages*. London: Williams and Norgate.

Lucas, G. 2006. Archaeology at the edge. An archaeological dialogue with Martin Hall. *Archaeological Dialogues*, Vol. 13, No. 1: 55-67.

Lugan, B. 1983. Le Rwanda oriental. In Van Noten, F. *Histoire Archaeologique Du Rwanda.* 130-137. Musee Royal De L'Afrique Centrale – Tervuren, Belgique Annales – serie in-8 – sciences humaines – N 112.

Lwanga-Lunyigo, S. L and J. Vansina. 1988. The Bantu-Speaking Peoples and Their Expansion. In M. El. Fasi (ed) *UNESCO General History of Africa*. Vol. 3. London: Heinemann.

MacEachern, S. 2006. Africanist archaeology and ancient IQ: racial science and cultural evolution in the twenty-first century. *World Archaeology,* Vol. 38, No. 1: 72-92.

MacGaffey, W. 1966. Concepts of race in the historiography of northeast Africa. *The Journal of African History,* Vol. 7, No.1: 1-17.

Macintosh, S. K. 2005. Archaeology and the reconstruction of the African Past. In Philips, J. E. (ed) *Writing African History*. 51-85 University of Rochester Press: Rochester.

MacLean, R. 1994/5. Late Stone Age and Early Iron Age settlement in the Interlacustrine region: a district case study. *Azania* 29-30: 296-302.

MacLean, R.1996a. *The Social Impact of the Beginning of Iron Technology in the Western Lake Victoria Basin: A District Case Study*. Unpublished PhD, University of Cambridge.

MacLean, R.1996b. Socio-political developments in the Early Iron Age of the Interlacustrine Region. In G. Pwiti & R. Soper (eds) *Aspects of African Archaeology.* 497-504. Harare: University of Zimbabwe Press.

MacLean, R.1998 Gendered Technologies and Gendered Activities in the Interlacustrine Iron Age. In S. Kent (ed) *Gender in African Prehistory*. 163-177. Walnut Creek: Altamira.

Maggs, T. 1980. The Iron Age Sequence South of the Vaal and Pongola Rivers: Some Historical Implications. *The Journal of African History*, Vol. 21, No. 1: 1-15.

Maggs, T. and V. Ward. 1984. Early Iron Age sites in the Muden area of Natal. *Annals of the Natal Museum*. 26: 105-140.

Maggs, T. & Whitelaw, G. 1991. A Review of Recent Archaeological Research of Food-Producing Communities in Southern Africa. *Journal of African History*, Vol 32: 3-24.

Mamdani, M. 2002. *When Victims Become Killers: Colonialism, Nativism, and the Genocide in Rwanda.* Princeton: Princeton University Press.

Maquet, J. 1961. *The Premise of Inequality in Rwanda: A Study of Political Relations in a Central African Kingdom.* Oxford: Oxford University Press.

Marshall, F. 2000. The origins and spread of domestic animals in East Africa. In R. Blench & K. McDonald (eds) *The Origins and Development of African Livestock: archaeology, genetics, linguistics and ethnography*. 191-221. London: UCL Press.

Marshall, F. and K. Stewart. 1994. Hunting, fishing and herding pastoralists of western Kenya: the fauna from Gogo Falls. *Archaeozoologia* 7: 7-27.

Mazel, A. D. 1989a. Changing Social Relations in the Thuleka Basin, Natal 7000-2000 BP. *Goodwin Series*, Vol. 6: 33-41.

Mazel, A. D. 1989b. People making history: the last ten thousand years of hunter-gatherer communities in the Thuleka Basin, *Natal Museum Journal of Humanities* 1: 1-168.

McMaster, M. 2005. Language Shift and its reflection in Africa Archaeology: Cord rouletting in the Uele and Interlacustrine regions. *Azania*, 40: 43-72.
Metraux, A. 1950. UNESCO and the Racial Problem. *International Social Science Bulletin,* 2. No. 3: 384-90.

Mercader, J., Rovira, S. and P. Gómez-Ramos. 2000. Shared technologies: forager-farmer interaction and ancient iron metallurgy in the Ituri rain forest, Democratic Republic of Congo. *Azania* 35: 107-122.

Meulemeester, J. De and A. Waleffe, 1973. Résultats de travaux de fouilles dans une butte de la plaine de la Rusizi (Burundi), *Africa-Tervuren*, XIX: 16-23.

Miller, D. 1980. Archaeology and Development. *Current Anthropology*, Vol 21, No.6: 709-715.

Misago, K. & Shumbusho, G. 1992. Archaeological and Ethnoarchaeological Research in the Zones of Rutshuru and Masisi in Northern Kivu. *Nyame Akuma*, 38: 66-71.

Mitchell, P. 2002. *The Archaeology of Southern Africa*. Cambridge: Cambridge University Press.

Moerman, M. 1965. Ethnic Identity in a complex civilisation: Who are the Lue? *American Anthropologist*, vol. 67.

MOLAS, 1994. *Archaeological Site Manual.* London: MoLAS.

Mosley, P.N. & Davison, S. 1992. Ugunja: A New Kansyore (Oltome) Site. *Azania* 27: 129-134.

Mufuka, K. 1983. *Dzimbahwe: Life and Politics in the Golden Age, 1100-1500.* Harare, Zimbabwe: Harare Publishers.

Musonda, F.B. 1997. Foragers and Farmers: Their Interactions. In J. Vogel (ed) *Encyclopaedia of Precolonial Africa: Archaeology, History, Languages, Cultures, and Environments*. 398-403. Walnut Creek: Altamira.

Mutoro, H. W. 1998. Precolonial trading systems of the East African interior. In G. Connah (ed) *Transformations in Africa: Essays on Africa's Later Past*. 186-203. Leicester: Leicester University Press.

Nenquin, J. 1959. Dimple-Based Pots from Kasai, Belgian Congo. *Man* 242: 153-155.

Nenquin, J. 1963. *Excavations at Sanga, 1957: the protohistoric necropolis*. Tervuren, Belgique : Musée royal de l'Afrique centrale. Museé royal de l'Afrique centrale, Tervuren, Belgique. Annales. Série in-8o. Sciences humaines; no. 45.

Nenquin, J.1967a *Contributions to the Study of Prehistoric Cultures of Rwanda and Burundi*. Tervuren: Annales du Musèe Royal de L'Afrique Centrale No. 59

Nenquin, J. 1967b. Notes on the Protohistoric Pottery Cultures in the Congo-Rwanda-Burundi Region. In W. Bishop & J.D. Clark (eds) *Background to Evolution in Africa*: 651-658

Nenquin, J. 1971. The Congo, Rwanda, and Burundi. In P. Shinnie (ed) The African Iron Age. 183-214. Oxford: Clarendon Press.

Neumann, K. 2005. The Romance of Farming: Plant Cultivation and Domestication in Africa. In A.B. Stahl (ed) *African Archaeology: A Critical Introduction*. 249-275. Oxford: Blackwell Publishing.

Newbury, C. 1988. *The Cohesion of Oppression: Clientship and Ethnicity in Rwand, 1860-1960.* New York. Columbia Univeristy Press.

Newbury, D. 1980. The Clans of Rwanda: An Historical Hypothesis. *Africa* 50 (4): 389-403.

Newbury, D. 2009. *The Land Beyond the Mists: Essays on Identity and Authority in Precolonial Congo and Rwanda.* Ohio: Ohio University Press.

Newbury, M.C. 1978. Ethnicity in Rwanda: the case of Kinyaga. *Africa*, Vol. 48, No. 1: 17-29.

Newbury, C and D. Newbury. 2000. Bringing the Peasants Back, in Agrarian Themes in the Construction and Corrosion of Statist Historiography in Rwanda. *American Historical Review* 105 (3): 832-77.

Nurse, D. 1982. Bantu Expansion into East Africa. In C. Ehret & M. Posnansky (eds) *The Archaeological and Linguistic Reconstruction of African History*. 199-204. Berkeley, Los Angeles: University of California Press.

Nurse, D. 1997. The Contributions of Linguistics to the Study of History in Africa. *Journal of African History*, Vol. 38: 359-391

Oliver, R. 1966. The Problem of the Bantu Expansion. *Journal of African History*, 7 (3): 361-376.

O'Brian, M. J. and R. L. Lyman. 2006. *Applying Evolutionary Archaeology: a systematic approach.* Ney York: Kluwer Academic.

Obura, A. 2003. *Never Again: Educational Reconstruction in Rwanda.* Paris: International Institute of Educational Planning.

O'Connor, T. 2000. *The Archaeology of Animal Bones.* Texas: A & M University Press.

Onyango-Abuje, J. C. 1977. *A Contribution to the study of the Neolithic in East Africa with particular reference to the Nakuru-Naivasha Basins*. Unpublished PhD thesis, University of California, Berkeley.

Overdulve, C. M. 1997. *Rwanda: Un people avec une histoire.* Paris: Harmattan.

Paris, F., Person, A., Quéchon, G. and J. –F. Saliége. 1992. Les débuts de la métallurgie au Niger septentrional (Air Azawagh, Ighazer, Termit). *Journal de la Société des Africanistes* 62: 55-68.

Payne, S. 1969. A metrical distinction between sheep and goat metacarpals, in .J. Ucko and G.W. Dmbleby (eds) *The domestication and exploitation of plants and animals*. 295-305. Lonodon: Duckworth.

Payne, S. 1973. Kill-off patterns in sheep and goats. The mandibles from Asvan Kale, *Anatolian Studies* 23: 281-303.

Payne, S. 1985a. Morphological distinctions between the mandibular teeth of young sheep, *Ovis*, and goats *Capra*. *Journal of Archaeological Science* 12: 139-47.

Payne, S. 1985b. Animal bones from Aikli Huyuk. *Anatolian Studies* 35: 109-22.

Payne, S. 1987. Reference codes for wear stages in the mandibular cheek teeth of sheep and goats, *Journal of Archaeological Science* 14: 609-14.

Pearce, S. & Posnansky, M. 1963. The re-excavation of Nsongezi rockshelter, Ankole. *Uganda Journal* 27 (1): 85-94

Phillipson, D. W. 1976. Archaeology and Bantu linguistics. *World Archaeology*, Vol. 8 (1): 65-82.

Phillipson, D. 1977. *The Later Prehistory of Eastern and Southern Africa*. London: Heinemann.

Phillipson, D.W. 1993. *African Archaeology*. Second Edition. Cambridge: Cambridge University Press.

Phillipson, D.W. 2005. *African Archaeology*. Third Edition. Cambridge: Cambridge University Press.

Plug, I. 1979. Namakala and Nanga: Faunal Report on Two Early Iron Age Sites, Zambia. *South African Archaeological Bulletin*, Vol. 34. No. 130: 123-126.

Plug. I. 1996. Seven centuries of Iron Age traditions at Bosutswe: a faunal perspective. *South African Journal of Science*, 92: 91-97.

Plug, C. and I. Plug. 1990. MNI counts as estimates of species abundance. *The South African Archaeological Bulletin*, 45: 53-7.

Plug, C. and R. Engela, 1992. The Macrofaunal Reamains from Recent Excavations at Rose Cottage Cave, Orange Free State. *The South African Archaeological Bulletin*, Vol. 47. No. 155: 16-25.

Posnansky, M. 1961a. Pottery Types from Archaeological Sites in East Africa. *Journal of African History*, 2 (2): 177-198.

Posnansky, M.1961b. Dimple-based pottery from Uganda. *Man* 168: 141-142.

Posnansky, M. 1961c. Iron Age in East and Central Africa – Points of Comparison. *South African Archaeological Bulletin*, Vol. 16: 134-136.

Posnansky, M. 1961d. Bantu Genesis. *Uganda Journal*: 86-93.

Posnansky, M. 1966. *Prelude to East African History*. London: Oxford University Press.

Posnansky, M.1967. The Iron Age in East Africa. In W. Bishop & J.D. Clark (eds) *Background to Evolution in Africa*: 629-649

Posnansky, M. 1968a. Bantu Genesis – Archaeological Reflexions. *Journal of African History*, 9 (1): 1-11

Posnansky, M. 1968b. Excavations of an Ankole capital site at Bweyorere. *Uganda Journal*, 32: 165-82.

Posnansky, M. 1973. Terminology in the Early Iron Age Eastern Africa with Particular Reference to the Dimple-based wares of Lolui Island, Uganda. *PanAfrican Congress for prehistory as associated studies* V: 577-579.

Posnansky, M. 1982. African archaeology comes of age. *World Archaeology*, vol 13 (3): 345-358.

Posnansky, M., Reid, A. and C. Ashley, 2005. Archaeology on Lolui Island, Uganda 1964-5. *Azania* XL: 1-29

Pottier, J. 2002. *Re-Imagining Rwanda: Conflict, Survival and Disinformation in the Late Twentieth Century*. Cambridge: Cambridge University Press.

Prehistoric Ceramics Research Group. 1995. *The Study of Later Prehistoric Pottery: General Policies and Guidelines for Analysis and Publication*. Occasional Papers No's 1 and 2.

Preucel, R. 1995. The postprocessual condition. *Journal of Archaeological Research*, Vol.3, No. 2: 147-175.

Prunier, G. 1995. *The Rwanda Crisis, 1959-1994: History of a Genocide*. London: Hurst.

Ramsay, H. von. 1898. Über seine Expeditionen nach Ruanda und dem Rikwa-See (Vortrag 4.6.1898. *Verhandlungen der Gesellschaft für Erdkunde zu Berlin* 25: 303-23.

Randall-Maciver, D. 1906. The Rhodesia Ruins: The probable origin and significance. *The Geographical Journal*, Vol. 27, No. 4: 325-336.

Ranger, T. 2004. Nationalist Historiography, Patriotic History and the History of the Nation: the Struggle over the Past in Zimbabwe. *Journal of Southern African Studies*, Vol. 31, No. 2: 215-234.

Raymaekers, J. & Van Noten, F. 1986. Early Iron Furnaces with 'Bricks' in Rwanda: Complimentary evidence from Mutwarubona. *Azania* XXI: 65-84.

Reid, D.A.M. 1990. Ntusi and its Hinterland: Further Investigations of The Later Iron Age and Pastoral Ecology in Southern Uganda. *Nyame Akuma* 33: 26-28

Reid, D.A.M. 1991. *The Role of Cattle in the Later Iron Age Communities of Southern Uganda*. Unpublished PhD thesis, University of Cambridge.

Reid, D.A.M. 1994/5. Early settlement and social organisation in the Interlacustrine region. *Azania* 29-30: 303-313.

Reid, D.A.M. 1996. Ntusi and the development of social complexity in southern Uganda. In G. Pwiti & R. Soper (eds) *Aspects of African Archaeology*. 621-628. Harare: University of Zimbabwe Press.

Reid, D.A.M. 2001. Bananas and the Archaeology of Buganda. *Antiquity* 75: 811-12.

Reid, D.A.M. 2002. Recent archaeological discoveries in Buganda and their implications for Archaeological Heritage Management. *Uganda Journal*, 48: 87-103.

Reid, D.A.M. 2004. Access to cattle resources in a Tswana capital. In A. Reid and P.J. Lane (eds) *African Historical Archaeologies*: *Contributions to Global Historical Archaeology*. 301-324. New York: Kluwer.

Reid, D.A.M. 2005. Interaction, marginalization and the archaeology of the Kalahari. in Stahl, A. (ed.) *African Archaeology: a critical introduction.* 353-377. Blackwell studies in global archaeology series. Oxford: Blackwell.

Reid, D.A.M., Ashley, C. Z. 2007. A context for the Luzira Head. *Antiquity* 82, 99-112

Reid, D. A. M and P. Lane 2004. African Historical Archaeologies: An Introductory Consideration of Scope and Potential in Reid, D. A. M and P. Lane (eds), *African Historical Archaeologies. Contributions to Global Historical Archaeology*. 1-32. New York: Kluwer.

Reid, D. A. M. and R. MacLean, 1995. Symbolism and the social contexts of iron production in Karagwe. *World Archaeology*, Vol. 27 (1): 144-161.

Reid, D. A. M. and J. Meredith, 1993. Houses, Pots, and More Cows: The 1991 Excavation Season at Ntusi. *Nyame Akuma*, No. 40: 58-61.

Reid, D.A.M. and J.E.K. Njau. 1994. Archaeological Research in Karagwe District. *Nyame Akuma* 41: 68-73.

Reid, D. A. M. and D.L. Schoenbrun, D.L. The Emergence of Social Formations and Inequality in the Great Lakes Region. *Archaeological Review from Cambridge*, Vol. 13 (1): 51-59.

Reid, D.A.M. and A.K. Segobye, 2000. Politics, society and trade on the eastern margins of the Kalahari. *South African Archaeological Society, Goodwin Series* 8 The Limpopo V, 58-68.

Reid, A. & Young, R. 2000. Pottery abrasion and the preparation of African grains. *Antiquity*, 74: 101-111.

Reitz, E. J. and E. S. Wing 1999. *Zooarchaeology*. Cambridge Manuals in Archaeology. Cambridge: Cambridge University Press.

Renfrew, C. and P. Bahn. 2005. *Key Concepts in Archaeology.* London: Routledge.

Rice, P. 1987. *Pottery Analysis: A Sourcebook*. Chicago & London: University of Chicago Press

Ringrose, T. J. 1993. Bone counts and statistics: a critique. *Journal of Archaeological Science*, 20: 121-57.

Robertshaw, P.T. 1990. A History of African Archaeology: an introduction. In P. T. Robertshaw (ed) *A History of African Archaeology*. 3-12. Oxford: James Currey.

Robertshaw, P.T. 1991. Recent Archaeological Surveys in Western Uganda. *Nyame Akuma*. No. 36:40-46

Robertshaw, P.1994. Archaeological survey, ceramic analysis, and state formation in western Uganda. *African Archaeological Review*, 12: 105-131

Robertshaw, P.T. 1997. Munsa Earthworks: a preliminary report
t. *Azania* 32: 1-20.

Robertshaw, P. T. 1999. Seeking and keeping power in Bunyoro-Kitara, Uganda. In S. K. MacIntosh (ed) Beyond chiefdoms: Pathways to complexity in Africa. 124-35. Cambridge: Cambridge University Press.

Robertson, J.H. & Bradley, R. 2000 A New Paradigm: The African Early Iron Age without Bantu Migrations. *History in Africa*, Vol. 27: 287-323.

Roscoe, J. 1911. *The Baganda*. London: Macmillan.

Rutembesa, F. 2002. Le discours sur le peuplement comme intrument de manipulation identitaire. In F. Rutembesa, E. Ntaganda and J. Murwanashyaka (eds) *Peuplement du Rwanda. Enjeux et perspectives*. Butare: Editions de Université Nationale du Rwanda.

Rye, O. 1981. *Pottery technology: Principles and Reconstruction*. Washington: Taraxacum Inc.

Sadr, K. 2003. The Neolithic of southern Africa, *Journal of African History* 44: 195-209.

Sadr, K. and I. Plug. Faunal Remains in the Transition from Hunting to Herding in Southeastern Botswana. *The South African Archaeological Bulletin*, Vol. 56. No. 173/174: 76-82.

Sadr, K., Smith, A. B., Plug, I. Orton, J. and B. Mütti, B. 2003. Herders and foragers on Kasteelberg: intrim report on excavations 1999-2002, *South African Archaeological Bulletin* 58: 27-32.

Sanders, E.R. 1969 .The Hamitic Hypothesis; Its Origin and Functions in the Time Perspective. *The Journal of African History*, Vol. 10, No.4: 521-532.

Schoenbrun, D.L. 1993. We Are What We East: Ancient Agriculture Between the Great Lakes. *Journal of African History*, Vol. 34: 1-31.

Schoenbrun, D.L. 1994/5. Social Aspects of Agricultural Change between the Great Lakes, AD 500-1000. *Azania* XXIX-XXX: 270-282.

Schoenbrun, D.L. 1998. *A Green Place, A Good Place: Agrarian Change, Gender, and Social Identity in the great Lakes Region to the C15th Century*. Oxford: James Currey.

Schumacher, P. 1956. *Dictionnaire phonétique Français-runyarwanda- français.* Kabgayi, Rwanda: Vicariat apostolique.

Schmidt, P. 1978. *Historical Archaeology: A structural approach in an African culture*. Westport: Greenwood Press.

Schmidt, P.1997. *Iron Technology in East Africa: Symbolism, Science and Archaeology.* Bloomington: Indiana University Press.

Schmidt, P. & Childs, S.T. 1985. Innovation and industry during the Early Iron Age in East Africa: KM2 and KM3 sites in Northwest Tanzania. *African Archaeological Review*, 3: 53-94.

Sebasoni, S. 2000. *Les Origines du Rwanda.* Paris: Harmattan.

Seligman, C.G. 1957. *Races of Africa*. Third edition. London. Oxford University Press.

Shanks, M. & Tilley, C. 1987. *Re-Constructing Archaeology: Theory and Practice.* London: Routledge

Shaw, T. 1997. The contemporary plundering of Africa's past. *African Archaeological Review.* 14:1-7.

Shepherd, N. 2002. The Politics of Archaeology in Africa. *Annual Review of Anthropology* 31: 189-209.

Sheratt, A. 1989. V. Gordon Childe: Archaeology and Intellectual History. *Past and Present*, No.125: 151-185.

Shinnie, P.L. 1960. Excavations at Bigo, 1957. *Uganda Journal* 24: 16-28.

Shinnie, P. L. 1967. *Meroe*: *a civilisation of Sudan*. London: Thames and Hudson.

Shinnie, P. 1978. The Nilotic Sudan and Ethiopia, in Fage, J. (ed*.). Cambridge History of Africa,* Vol. III: 210-271. Cambridge: Cambridge University Press

Shott, M.J. 1996. Mortal Pots: on the use life and vessel size in the formation of ceramic assemblages. *American Antiquity*, Vol. 61: 463-482.

Shyala, 2006. *The Rwandan Conflict: Origin, Development, Exit Strategies*. Rwanda: The National Unity and Reconciliation Commission.

Siiriäinen, A. 1984. *Excvations in Laikipia: An archaeological study of the recent prehistory in the Eastern Highlands of Kenya*. Helinski: Suomen Muinaismuistoyhdistksen Aikakauskirja Finska Fornminnesförenengens Tidskrift.

Simon, P. 1983. La région du Lac Bulera. In Van Noten, F. *Histoire Archaeologique Du Rwanda.* 137-148. Musee Royal De L'Afrique Centrale – Tervuren, Belgique Annales – serie in-8 – sciences humaines – N 112.

Simonet, C. 2004. *Preliminary report on test excavations at Masangano.* Unpublished report submitted to the Institute de Musee National de Rwanda.

Sinclair, P. Shaw, T. & Andah, B. 1993 Introduction. In Shaw et al (eds) *The Archaeology of Africa: Food, metals and towns.* 1-31. London: Routledge.

Skibo, J, Butts, T. & Schiffer, M.B. 1997. Ceramic Surface Treatment and Abrasion Resistance: An Experimental Study. *Journal of Archaeological Science*, Vol. 24: 311-317.

Smith, A.B. 2005. The concepts of 'Neoltithic' and 'Neolithisation' for Africa? *Before Farming*, 4: 29-34.

Smith, A. B. and R. B. Lee. 1997. Cho/ana: archaeological and ethnohistorical evidence for recent hunter-gatherer/agropastoralist contact in northern Bushmanland, Namibia, *South African Archaeological Bulletin* 52: 52-58.

Solway, J. S. and R. B. Lee. 1990. Foragers, genuine or spurious? Situating the Kalahari San in history, *Current Anthropology*, 31: 109-146.

Soper, R. 1969. Radiocarbon Dating of Dimple-based ware in western Kenya. *Azania* 4: 148-53.

Soper, R. 1967. Iron Age Sites in North-Eastern Tanzania. *Azania* 2: 19-36.

Soper, R. 1971a. A General Review of the Early Iron Age of the Southern Half of Africa. *Azania* 6: 5-38.

Soper, R. 1971b. Iron Age sites in Chobi sector, Murchison Falss National Park, Uganda. *Azania,* 6: 53-87.

Soper, R. 1973. *Early Iron Age Pottery Types from East Africa: Comparative Analysis*. Proceedings of the Panafrican Congress V.

Soper, R. and Golden, B. 1969. An archaeological survey of Mwanza region, Tanzania. *Azania* 4: 15-79.

Spencer, H. 1885. *The Principles of Sociology*, Vol. 1. 3rd Edition. New York: Appleton and Co.

Stewart, K. 1993. Iron Age ceramic studies in Great Lakes Eastern Africa. *African Archaeological Review* 11: 21-37.

Starzmann, M. T., Pollok, S. and P. Bernbeck. 2008: Imperial Inspections: Archaeology, War and Violence. *Archaeologies*, Vol 4. No. 3: 353-355.

Sterner, J. 1989. Who is signalling whom? Ceramics style, ethnicity and taphonomy among the Sirak Bulahay. *Antiquity*, Vol. 63: 451-459

Stahl, P. W. 1996. The recovery and interpretation of microvertebrate bone assemblages from archaeological contexts. *Journal of Archaeological Method and Theory*. Vol. 3, No. 1: 31-75.

Straus, S. 2006. *The Order of Genocide: Race, Power, and War in Rwanda*. Ithaca, New York Cornell University Press.

Sutton, J.E.G. 1968. The Settlement of East Africa. In B.A. Ogot & J.A. Kieran (eds) *Zamani: A Survey of East African History.* 69-99. Nairobi: East Africa Publishing House and Longman Group Ltd.

Sutton, J.E.G. 1998 Archaeological Sites of East Africa: four studies. *Azania* XXXIII.

Tantala, R.L. 1989. *The Early History of Kitara in Western Uganda: Process Models of Religious and Political Change*. Unpublished Ph.D dissertation. University of Wisconsin at Madison.

Taylor, D & Marchant, R. 1994/5. Human impact in the Interlacustrine region: long-term pollen records from the Rukiga highlands. *Azania* 29-30: 283-295.

Taylor, D. Marchant, R.A. & Robertshaw, P.T. 1999. A sediment-based history of medium altitude forest in central Africa: a record from Kabata Swamp, Ndale Volcanic field, Uganda. *Journal of Ecology* 87: 303-315.

Taylor, D, Robertshaw, P. & Marchant, R.A. 2000. Environmental change and political-economic upheaval in precolonial western Uganda. In *The Holocene*, 10 (4): 527-536.

Tshihiluka, T. 1983. Ryamurari, capitale de l'ancien royaume du Ndorwa. In Van Noten, F. (ed) *Histoire Archaeologique du Rwanda* Butare and Tervuren. 149-53. Musee Royal De L'Afrique Centrale – Tervuren, Belgique Annales – serie in-8 – sciences humaines – N 112.

Trigger, B. 1969. The myth of Meroe and the African iron age. *African Historical Studies*, 2, 23–50.

Trigger, B.G. 1984. Alternative Archaeologies: Nationalist, Colonialist, Imperialist. In Preucel, R. & I. Hodder (eds) *Contemporary Archaeology in Theory: A Reader*. 615-631. Oxford: Blackwell Publishers.

Trigger, B. G. 1989. *A History of Archaeological Thought*. Cambridge: Cambridge University Press.

Ucko, P. 1990. *Academic Freedom and Apartheid: the Story of the World Archaeological Congress*. London: Duckworth.

Van Grunderbeek, M-C. 1981. The Iron Age in Rwanda and Burundi. *Nyame Akuma*: 26-31.

Van Grunderbeek, M-C.1988. Essai d'étude typologique de céramique urewe dans la région des collines au Burundi et Rwanda. *Azania* 23: 11-55.

Van Grunderbeek, M-C.1992. Essai de délimitation chronologie de L'Age du Fer Ancien au Burundi, au Rwanda et dans la région des Grands Lacs. *Azania* 27: 53-80.

Van Grunderbeek, M-C., Roche, E. & Doutrelpont, H. 1983. *Le Premier Age du Fer au Rwanda et au Burundi, Archaeologie et Environment.* Brussels: Institut National de Recherché scientifique

Van Grunderbeek, M-C, Roche, E & Doutrelepont, H. 2001. Un Type de Fourneau de Fonte de Fer Associe a la Culture Urewe (Age du Fer Ancien) Au Rwanda et au Burundi. *Mediterranean Archaeology*. Volume 14: 271-297.

Van Grunderbeek, M-C. and E. Roche. 2007. Multidisciplinary Evidence of Mixed Farming during the Early Iron Age in Rwanda and Burundi. In T. Denham, J. Iriate, and L. Vrydaghs (eds) *Rethinking Agriculture: archaeological and ethnoarchaeological perspectives.* 299-319. Walnut Creek: Left Coast Press.

Van Neer, W. 1989. *Contribution to the Archaeology of Central Africa*. Musee Royal de L'Afrique Centrale Tervuren, Belgique. Annales Sciences Zoologiques. Vol. 259.

Van Neer, W. 2000. Domestic animals from archaeological sites in Central and west-central Africa. In R. Blench & K. MacDonald (eds) *The Origins and Development of African Livestock: archaeology, linguistics, and ethnography*. 163-190. London: UCL.

Van Noten, F. 1972. *Les tombes du roi Cyirima Rujugira et de la reine-mère Nyirayuhi Kanjogera: Description archéologique*. Tervuren : Musée royal de l'Afrique centrale.

Musée royal de l'Afrique central, Tervuren, Belgique. Annales. Série in 8ê. Sciences humaines; no 77.

Van Noten, F. 1977. Excavations at Matupi Cave. *Antiquity*, 51: 35-40.

Van Noten, F. 1979. The Early Iron Age in the Interlacustrine Region: The Diffusion of Iron Technology. *Azania* 14: 61-79.

Van Noten, F. 1983. *Histoire Archeologique du Rwanda*. Butare and Tervuren: Butare and Tervuren. Musee Royal De L'Afrique Centrale – Tervuren, Belgique Annales – serie in-8 – sciences humaines – N 112.

Vansina, J. 1962. Long Distance Trade Routes in Central Africa. *Journal of African History*, Vol. 3, No.3: 375-90.

Vansina, J. 1994. *Living with Africa.* Madison: University of Wisconsin Press.

Vansina, J. 1998. The Politics of History and the Crisis of the Great Lakes. *Africa Today* 45 (1): 37-44.

Vansina, J. 2004. *Antecedents to Modern Rwanda: The Nyiginya Kingdom.* Oxford: James Currey.

von den Driesch, A. 1976. *A guide to the measurement of animal bones from archaeological sites : as developed by the Institut für Palaeonatomie, Domestikationsforschung und Geschichte der Tiermedizin of the University of Munich.* Peabody Museum Bulletin 1.

Wadley, L. 1996. Changes in the social relations of precolonial hunter-gatherers after agropastoral contact: an example from the Magaliesberg, South Africa, *Journal of Anthropological Archaeology* 15: 205-217.

Watson , J. P. N. 1978. The interpretation of epiphyseal fusion data, in D. Brothwell, J. Clutton-Brock and K. D. Thomas (eds) *Research problems in zooachaeology*. London: Institute of Archaeology Occasional Publications 3: 97-101.

White, T. E. 1953. A method for calculating the dietry percentages of various food animals utilised by aboriginal peoples. *American Antiquity* 18: 386-98.

Wilmsen, E. N. 1989. *Land Filled with Flies: a political economy of the Kalahari*, Chicago: Chicago University Press.

Wilmsen, E. N. 1993. On the Search for (Truth) and Authority: A Reply to Lee and Guenther, *Current Anthropology,* Vol. 34, No. 5: 715-712.

Wilmsen, E. N. and J. R. Denbow. 1990. Paradigmatic history of San-speaking peoples and current attempts at revision, *Current Anthropology* 31: 489-524.

Wotzka, H-P. 2006. Records of activity: radiocarbon and the structure of Iron Age settlement in Central Africa. in Grundlegungen. Beiträge zur europäischen afrikanischen Archäologie für Manfred K. H. Eggert. 271-289. Tübingen: Francke.

Young, R. & Thompson, G. 1999. Missing Plant Foods? Where is the Archaeobotanical Evidence for Sorghum and Finger Millet in East Africa? In M. Van der Veen (ed) *The Exploitation of plant resources in Ancient Africa*: 63-72. New York: Kluwer Academic/Plenum Publishers.

Appendix 1

Human Bones Report for Kabusanze (BPS036)

Dr Anna Clement

Adult Skeleton

This skeleton was discovered in the lower part of the burial pit. Only elements from the upper part of the skeleton were present. These included elements of the cranial and post-cranial skeleton.

Cranial bones
Flat bone fragments of the skull, fragments of the sphenoid bone, left and right zygomatic bones, mandible and maxilla.

Post cranial bones
Rib fragments, parts of the vertebrae, including the atlas and the axis and the distal end and partial shaft of a right humerus.

Dentition
Upper - third molars, second molars, first molars, fourth premolars, third premolars, canines, right second incisor and left first incisor.
Lower – left third molar (impacted), left second molar, right first molar, fourth premolars, third premolars, canines, second incisors and first incisors.

Age
The upper third molars are fully erupted, indicating that this is an adult skeleton. The best indictor of age in the adult human skeleton is the innominate bone of the pelvis (Buikstra & Ubelaker 1994). However, neither the left nor right innominate bone was found within the burial pit, so it is not possible to age the skeleton in this way. Tooth wear can also been used to age adult human skeletons. The teeth show moderate amounts of tooth wear with patches of dentine exposed on most of their occlusal surfaces. However, without more comparative skeletal material it is impossible to place it within a young adult, adult, or mature adult age category.

Sex
The best indicators for age in the adult human skeleton are also found within the pelvic region, but features of the skull can also be used (Buikstra & Ubelaker 1994). The mandible is extremely well preserved in this adult skeleton and provides the best indicator of sex. The size and robustness of the mandible strongly suggest that this skeleton represents a large and robust adult male.

The Dentition
This individual possesses some non-metrical variations within its dentition. The upper right second incisor shows an atypical morphology know as a peg-shape, a variation commonly observed in modern humans. In addition, the upper left second incisor is absent and it seems reasonable to suggest that it was congenitally absent as this is another morphological variation that is commonly associated with a peg-shaped counterpart (Hillson 1996). In the lower dentition both the left first molar and the right second and third molars are absent. The lower left first molar appears to have been lost ante-mortem. Its surrounding alveolar bone shows evidence for a

large abscess, which probably caused the tooth to be lost. The alveolar bone located in the region of the lower right second and third molars does not show any evidence of abscesses and it is possible that both these teeth were congenitally absent. It is not, however, possible to confirm this without x-raying the bone.

Several of the teeth also show evidence for caries (dental decay) and infection. The pulp chamber of the upper left first incisor has been exposed through a major fracture of the tooth crown resulting in the formation of a large abscess at the apex of the root.

Summary
The human skeleton discovered in the lower part of the burial represents a large adult male. The elements of this adult skeleton that were discovered within the pit are well-preserved and the absence of the rest of the skeleton therefore requires further explanation. One possibility is differential preservation within the burial pit. However, the missing elements of the skeleton include the bones of the pelvis and the legs. These represent some of the largest and strongest bones in the human skeleton and it seems unlikely that small fragments of ribs would be preserved within the burial pit and not parts of these larger bones. In addition the partial humerus is extremely well-preserved, but none of the other long bones of the arm were discovered. The depth of the deposit also means that the bones were unlikely to have been disturbed post burial. An alternative explanation is that only select parts of the skeleton were buried. This is supported by the presence of cut marks on both the mandible and the humerus, as well as a possible peri-mortem fracture on the shaft of the humerus. These are possible indications of violence and/or defleshing. The fracture and cut marks need to be examined and evaluated further before any firm conclusions can be made.

<u>Neonate Skeleton</u>

This skeleton of a neonate was discovered approximately 0.5m above the adult skeleton and was extremely well preserved. It included most of the major elements of the skeleton

Cranial bones
Flat bones of the skull, including identifiable fragments of the parietal, occipital and frontal bones; left greater wind of the sphenoid; the left petrous bone with partial squamous and tympanic ring, and a small fragment of mandible.

Post-cranial bones present:
Left scapula, left humerus, left and right ulna, left radius, distal fragment of the right radius, ribs, right ilium, left and right femur, left and right tibia, left fibula, metapodials and phalanges.

Dentition
No teeth were recovered.

Age
The maximum length of the major long bones as well as elements of the skull can provide estimates for age-at-death in the neonate skeleton (Scheuer & Black 2004). Measurements were taken for each of the complete long bones as well as the petrous bone and are listed in the table below.

Bone	Measurement (mm)	Bone	Measurement (mm)
Left femur	77	Right femur	78
Left tibia	67	Right tibia	66
Left fibula	61	Left ulna	61
Left radius	55	Left petrous	43

All of these measurements fall within the range of a full-term neonate with an age-at-death of around the time of birth (Scheuer & Black 2004). This is supported by the fusion of the petrous bone and tympanic ring in this skeleton, which also occurs at around the time of birth

Sex
It is currently extremely difficult to sex a neonate skeleton because the main sex related changes in the human skeleton do not occur until adolescence (Scheuer & Black 2004). A reliable sex estimate can not therefore be provided for this skeleton.

Summary
This extremely well-preserved skeleton represents the remains of a neonate with an age-at-death of around the time of birth. It is possible that the infant survived the first few weeks after birth, but this is impossible to confirm without detailed analysis of the associated dentition.

References

Buikstra J.E. and Ubelaker D.H. 1994. Standards for data collection from human skeletal remains. Fayetteville, AK: Arkansas Archaeological Survey.

Hillson, S.W. 1996. Dental Anthropology. Cambridge: Cambridge University Press.

Scheuer, L. and Black, S. 2004. The Juvenile Skeleton. London: Elsevier Ltd.

Appendix 2

Metallographic Analysis of two iron objects from an Early Iron Age burial in Southern Rwanda

Jane Humphris (UCL)

Introduction

In 2007, John Giblin (PhD candidate, UCL Institute of Archaeology), excavated a number of iron objects from an Early Iron Age burial in Southern Rwanda, a region renowned for some of the earliest iron production in Sub-Saharan Africa. It is known that the artisans of the period constructed their furnaces partly using decorated clay bricks, which were assembled over a pit within which slag drained during the smelt. This decoration has been likened to that observed on contemporary Urewe ceramics (Van Grunderbeek *et al* 2001), although the purpose of this stylistic choice is still debated (Schmidt 1996: 221). Little is known about how these early ironworkers controlled the smelting parameters to produce enough metal to make the resource and labour thirsty job of iron production worthwhile (however see Craddock *et al* 2007). Furthermore, largely due to Rwanda's very wet climate (creating the perfect corrosive environment for such objects), no information regarding the iron metal that was being produced during these early periods has been available until now.

A date of AD 417 to 554 (2 sigma calibration) has been obtained for the burial, within which the conditions were not only adequate enough to preserve iron objects, but also human bone, alongside beautifully decorated Urewe vessels, beads and a cowry shell which must have travelled all the way from the Indian Ocean. Thus it can be said from the outset that this was a high status burial, with trouble taken to fill the grave with prestigious grave goods. The iron objects were all body adornments, including two bracelets, one necklet, and one hollow iron disk (fig. 1). The fact that these iron items are made to be decorative, and that the person wearing them may well have been a high status individual, provide the first insight into the use of iron produced during these early periods.

On arrival at UCL these objects were assigned to Kelly Caldwell, an MSc Conservation student, for conservation treatment. She initially cleaned the objects to remove as much corrosion as possible, and then stabilised them in preparation for display in the National Museum of Rwanda (mindful of the Museum's lack of climate control facilities).

Fig. 1. Iron objects after conservation. From left to right: necklet; bracelet; bracelet; iron disk (photograph courtesy of Kelly Caldwell, UCL MSc Conservation student).

Metallographic methods

One sample was taken from the end point of the necklet (sample A), and one from a bracelet (sample B), after permission was obtained for such sampling from the National Museum of Rwanda. These sampling areas were selected to cause limited damage to the overall appearance of the objects. Additionally, the choice of sampling was influenced by x-rays of the objects, which illustrated that while much of the iron metal within the iron disc had corroded (presumably due to its flatter shape, at only a few mm thick, and so greater ratio of surface area to iron metal), the integrity of the metal within the iron necklet and bracelets was more significantly preserved (fig. 2).

Fig. 2. X-ray taken of the objects displaying the level of corrosion affecting the iron metal (X-ray courtesy of Kelly Caldwell).

The samples were slowly sawn off using a slow-speed mini Dremel saw. Using a larger instrument (such as a tile cutter), although quicker, may have generated too much heat and thus affected both the metal structure as well as the integrity of the objects themselves. Standard laboratory techniques were used to mount the samples in epoxy resin blocks, with the largest cross-section possible visible for laboratory examination. The resin blocks were polished down to a grain size of 0.25 µm following established procedures, producing a mirror-like finish.

The hardness of the samples was tested using the Vickers Micro-hardness test, which subjects the metal to a certain load (100g in this case) using the microscopic point of a diamond pyramid to make a small indentation within the surface of the metal. The size of this indentation is dependant on the resistance of the metal, and is measured under a microscope. The measurement of the pyramid is then matched to a scale of hardness (Bailey 1972: 168-169; Scott 1991: 77). Optical microscopy utilising plane polarised light (PPL), was used to provide a general view of the samples. Following this the samples were etched in nital for 1-3 minutes to reveal the internal microstructures, and then carbon coated and examined using the SEM-EDS to provide greater understanding of both the microstructure and phase compositions.

Results

A significant amount of time and technical skill was used to form the shape of these objects. The necklet and the bracelets appear to be square in section, suggesting that the iron was hammered down four sides and then gradually bent, possibly around an object with the desired circumference. However, the metal within both of these iron objects is heavily dominated by slag inclusions (fig. 3), indicating that the iron was not hammered consistently over a long period of time with the aim of expelling the slag inclusions. Although in some types of iron objects such a factor would have been detrimental to the overall structural strength (the slag inclusions causing weakness to the body of the items), in decorative adornments such as these, this would not have presented a problem. The slight flattening of some of the slag inclusions, while others remain un-flattened and with a variety of shapes and orientations again indicate that it was the shape of the objects, rather that the purity of the iron metal, which was the main concern for the smith.

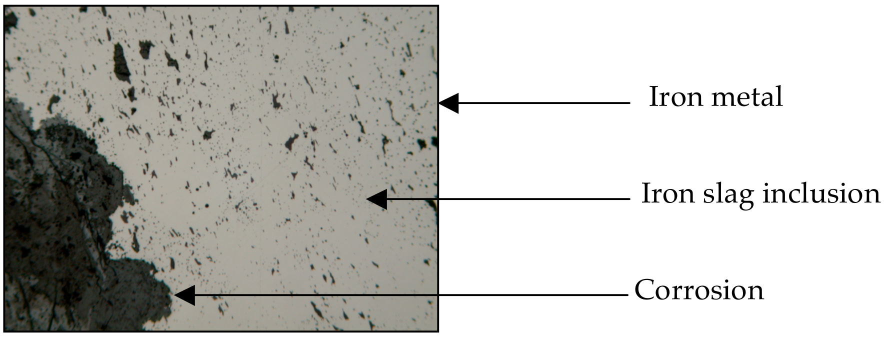

Fig. 3. Photomicrograph of sample A, illustrating an iron metal matrix densely packed with slag inclusions present in a variety of shapes and orientations (PPL 50x, image width 2mm).

Interestingly the majority of the slag inclusions remain un-corroded and with unreduced iron oxide phases (mainly wüstite), as well as hercynite (indicative of the alumina rich slags of the region), still present (fig. 4). SEM-EDS analysis confirmed the presence of these phases, with the wüstite present within a kalcilitic matrix enriched with lime, and fayalite also present (as would be expected within bloomery slag). Thus in the future, microprobe analysis could be used to identify chemical signatures within the slag inclusions and provenance study could be conducted to identify the source of the iron. As it is known that a significant amount of iron was being produced in Southern Rwanda, Northern Burundi and North-west Tanzania at this time, it would be interesting to either confirm a local source, or suggest that these objects had been traded from elsewhere (similar to the cowry shell also discovered in the burial).

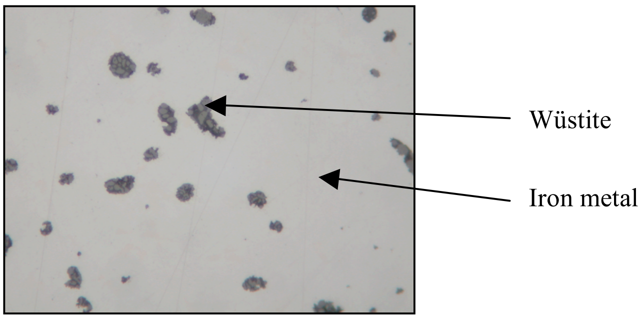

Fig. 4. Photomicrograph of sample A, illustrating unreduced iron oxide phases within the slag inclusions.(PPL 200x, image width 0.5 mm).

Both of the objects were primarily classified by Vickers Hardness readings of between 197 Hv - 279 Hv (fig. 5), indicative of low carbon ferrite, as would be expected in bloomery iron that has been forged into an object. The carbon content of the iron is variable within the objects, again characteristic of bloomery iron (Scott 1991: 89). In this case, a maximum hardness of 657 Hv was recorded on the outside edge of sample A, suggesting an elevated carbon content, presumably resulting from an episode of heating during forging.

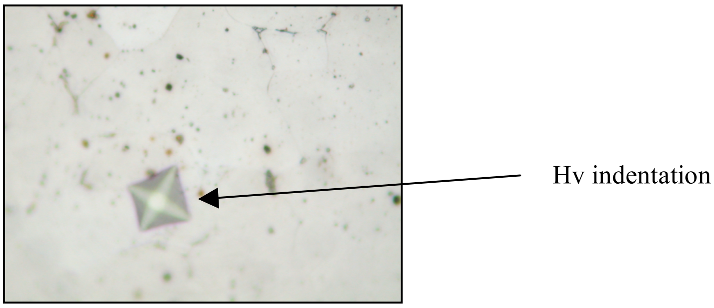

Fig. 5 Sample B, pyramid-shaped indentation from the Vickers Micro-hardness test
PPL 500x, image width 0.2mm

When etched with nital (dilute nitric acid), the structure of the metal was revealed (Scott 1991: 69). In both iron samples a matrix dominated by large-grained low-carbon ferrite zones is obvious (fig. 6). The grain boundaries indicate typical, cube-like structures, as would be expected from bloomery iron where the iron cools quickly during the forging of the desired shape (Rostoker and Dvorak 1965: 10; Ryzewski and Gordon 2008: 52). The slightly increased carbon content was also highlighted towards the outer edge of sample A, where pearlite is visible (fig. 7: see Rostoker and Dvorak 1965: 135). This suggests that the objects had been placed back in the forge towards the end of the process and thus the carbon content in some areas had become elevated.

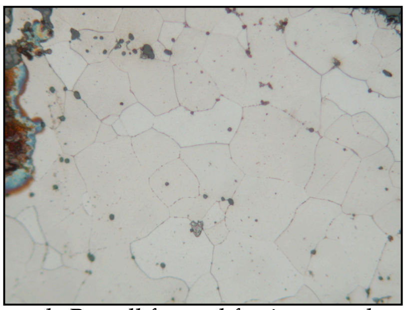

Fig 6. Sample B: well formed ferrite crystals
PPL 200x, image width 0.5 mm

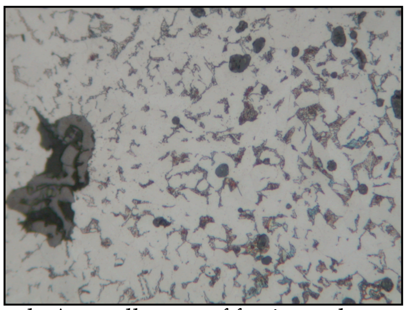

Fig. 7 Sample A: small areas of ferrite and pearlite
PPL 500x, image width 0.2mm

Discussion

This first analysis of iron objects produced during the Early Iron Age in Rwanda has finally provided an insight into the use of at least some of the iron objects made during this early period. As described above, the grave goods represented within this excavation indicate a high-status, important burial. That this person was adorned with decorative objects made from iron indicates that the metal was being used to produce luxury items for high status individuals.

The iron objects were made by one or more skilled smiths capable of shaping iron into long strands and then shaping it to produce what would have been very symmetrical circles. The circular disc also highlights the technical skills of the artisan, being flat yet round with a hole through the middle - presumably a very difficult shape to achieve. The bracelets appear to have small pieces of iron heat sealed onto them (fig. 1), although the original appearance is unknown. Clearly the specialist hammering skills of the smith were impressive, despite the high levels of slag remaining in the metal. Either a choice was made that for this purpose the effort to expel more slag was unnecessary, or the implications of a large slag inclusion content was unknown. Unfortunately, without comparative objects made for different purposes (ideally a hoe and/or spear dating to the same period), if any such items were fabricated from iron at this time, the high level of slag inclusions within these objects remains difficult to interpret. The same can be said for the type of iron produced. As mentioned, certain areas of these objects contained higher carbon contents, which are interpreted here as an accident resulting from the objects being left in the forge too long. Ferritic iron (produced by bloomery smelting and primary forging), is malleable and easy to work, although this becomes more difficult as the carbon content increases. However, where a strong edge is required, for example for a knife or spear, an elevation in carbon content would aid the purpose of the object by creating a particularly tough edge. Further analysis of a variety of iron objects dating to this period could indicate whether in fact this higher carbon level was achieved on purpose, and so whether or not the smiths of the time in fact recognise the hardening effects of leaving objects in the forge for slightly longer than really necessary.

These objects are now back in the National Museum of Rwanda, serving to illustrate the technological prowess of Rwanda's ancient iron workers. The insight into society that has been provided by the excavation of this burial and its combined grave goods is fascinating. Not only was iron apparently viewed as a prestige good - adorning the body of a clearly important individual - but it could also be intricately worked during these very early periods. The variety of iron objects within the grave (necklet, two bracelets and an iron disc) designed to decorate different parts of the body, could be suggested to have vague parallels with the approach to the intricate decoration of furnaces and of Urewe ceramics during the period. As research continues, the sophisticated technological skills of the artisans of the time, and the care that was taken to embellish and adorn many aspects of society, are constantly being recognised.

References

Bailey F. W. J. 1972: *Fundamentals of Engineering Metallurgy and Materials*. Cassell & Company Ltd. London

Craddock P., Freestone I., Middleton A. & Van Grunderbeek M-C. 2007: The Scientific Study of Some Early Iron Age iron Smelting Debris from Rwanda and Burundi, East Africa. *Historical Metallurgy* 41(1): 1-14.

Roster W & Dvorak J. R. 1965: *Interpretation of Metallographic Structures.* Academic Press, New York

Ryzewski K. & Gordon R. 2008: Historical nail-making techniques revealed in metal structure. *Historical Metallurgy* 42 (1): 50-64.

Scott D.A. 1991: *Metallography and Microstructure of Ancient and Historic Metals.* The J Paul Getty Trust with Archetype Books+
-

Schmidt P. R: 1996: Reconfiguring the Barongo: Reproductive symbolism and reproduction among a work association of iron smelters. In Schmidt P. R. (ed.), *The Culture and Technology Of African Iron Production,* 74-127. Gainesville: University Press of Florida.

Van Grunderbeek M-C., Roche E. & Doutrelepont H. 2001: Un type de fourneau de fonte de fer associe a la culture Urewe (age de fer ancien) au Rwanda et au Burundi. *Mediterranean Archaeology* 14: 271-297.